

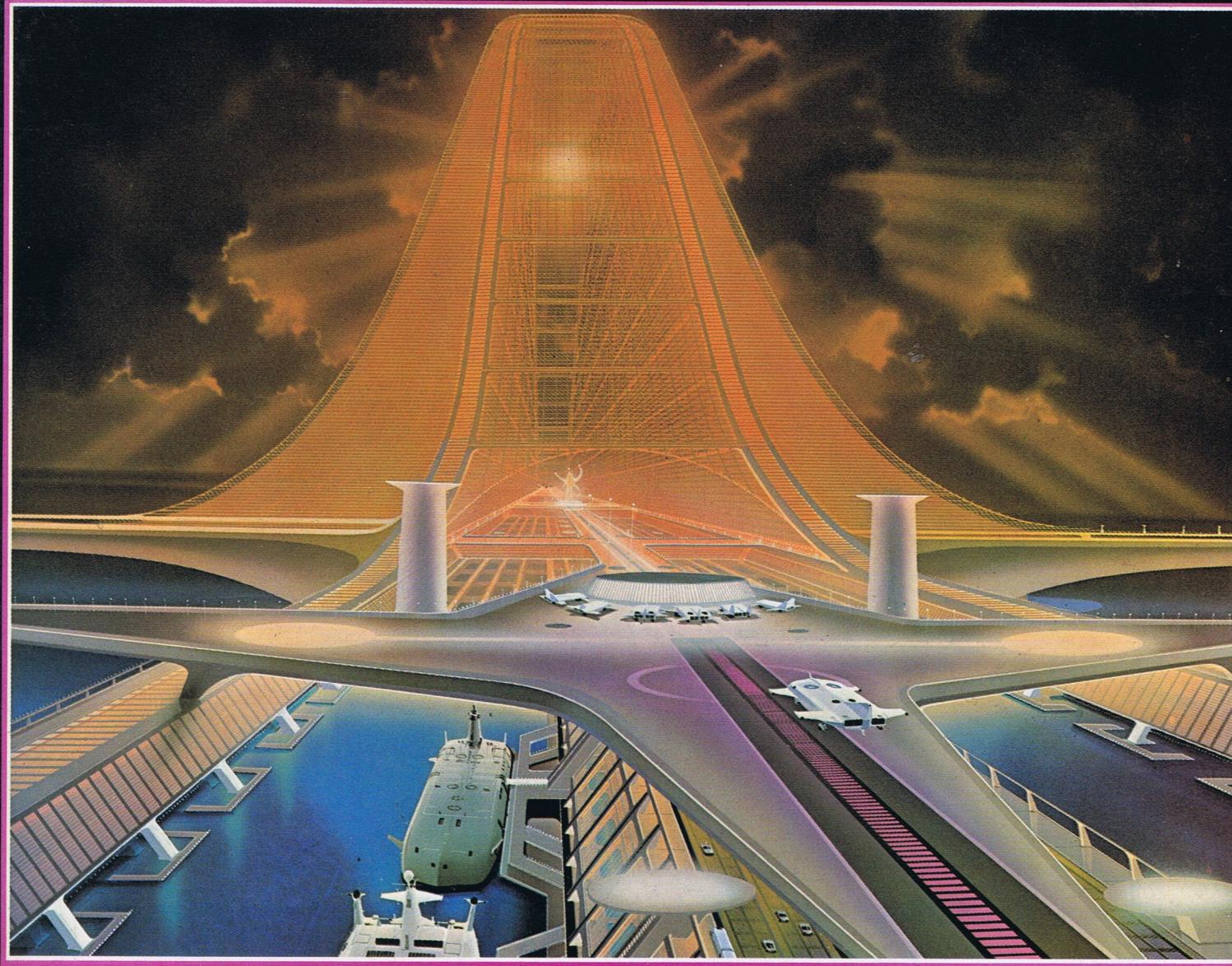
INSIDE:  
COLOR FOLD-OUT POSTER  
(see center spread)

Interviews: RAY BRADBURY  
and STEVEN SPIELBERG

OCTOBER 1978 #5

# FUTURE

UK  
85P  
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\$1.95



The Megalopolis of the Future as envisioned by artist Shusei Nagaoka (see centerfold poster)



“Galactica” • “Metropolis” • “Dr. Strange”  
**WILLIAM F. NOLAN: From Robots To Androids**  
Science Fiction Supermarket • Earthport Plans  
The Classic Collier’s Space Art Series

REED



*The Magazine of Science Adventure*

# FUTURE

OCTOBER 1978 #5

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# FUTURE

OCTOBER 1978 #5

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**ON THE COVER:** A detail from Shusei Nagaoka's fabulous city of the future painting. The entire city is based upon the present-day concept of the skyscraper. Added into the artist's cityscape is a seaport (lower left), designed for "three-dimensional" transport, and a spaceport.

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# output

**T**he Tax Revolt has started. Good.

People are striking out at rising government budgets. People are fed up. People are demanding that taxes go down.

But taxes *never* go down; their nature is to rise. Politicians encourage the rise because it gives them more dollars to play with, more programs to manage, more favors to hand out—and that, of course, gets them elected again. It isn't the public status they crave so much as controlling all that public money.

It's going to be fun watching the politicians squirm, deciding what services can be cut out and cost them the fewest votes. Something's gotta go; less tax revenue has to mean less services. You can't get something for nothing.

Local politicians are already trying to avoid the decisions by pointing toward Washington, as if it's a federal responsibility to provide the services that will no longer be locally financed. Don't be fooled. If Washington takes over these services, federal taxes *will rise*. So long as a program exists *at all*, it must be paid for by the people. You can't get something for nothing.

Sooner or later everyone who is fighting against taxes must be willing to give up government's handling certain programs altogether. There are thousands of activities that can be handled with greater efficiency by private business and would be paid for only by those who actually use the service—voluntarily!

Education, transportation, postal delivery, food and medicine are no more the realm of government management than shoes and funerals are. Neither is child care, drug testing, retirement insurance and support of ballet. There's a list as long as Park Avenue, and as things stand now, every one of us is *forced* to support every program—whether we like it or not; whether we use it or not.

Again, the programs must vanish along with the taxes. That is, they must vanish from government control—city, state and federal.

It's so easy to spend money when you're the government, and each new program seems to be all for the good. But increased government spending causes taxes to rise; employees and unions demand higher salaries to pay the taxes; then businesses must raise the prices of their products and services to pay their higher operating costs—and John Q. Public finds he's not only paying higher taxes but higher prices for everything.

In the end, all those lovely "free" government programs (designed to benefit all mankind) cost more than we can afford. We get fed up. We revolt!

And if all this discussion of economics seems too abstract and distant from your life, take a look at the magazine you're holding. With this issue, we had to raise our cover price. We hate it more than you do because that extra 20¢ will prevent some of our readers from affording FUTURE. The only alternative was to cut down on the package—give our readers less. We elected not to.

The skyrocketing costs of paper and other production materials forced us (like every other publication) into this increase. We had no choice, and within the next year the price will probably have to go up again, unless science fiction fans get interested in politics and economics and start fighting for the right to hold onto their own money.

The Tax Revolt will require a major battle; anything worthwhile does. After all, you can't get something for nothing.



Kerry O'Quinn/Publisher

Because of the large volume of mail we receive, personal replies are impossible. Comments, questions and suggestions are appreciated, however, and those of general interest may be selected for publication in future issues. Write:

FUTURE Input  
475 Park Ave. South  
8th floor suite  
New York, NY 10016

## MOON NEWS

...It has been several years since man last visited the Moon. Before July 20, 1969 mankind was curious about the Moon. But now, to many of us, many questions remain unsolved. What did we learn or accomplish from the Apollo missions? Were these voyages just an expensive sight-seeing trip? I think it would be helpful if someone from NASA would explain these things.

David Tucker  
1599 Monaco Circle  
Salt Lake City, Utah 84121

*In addition to just learning that we can get there, we now know that the Moon is made of oxygen, silicon, aluminum, iron, magnesium, titanium and a few other things. Of course, plenty of questions are unsolved (Apollo data is still being analyzed), but for a capsule look at what NASA knows now you can write off for a free book, "What's New On the Moon." Send a letter with your request to NASA Headquarters, Code LFF-3, Washington, D.C. 20546.*

## WHITE OR WRONG

...There was a serious error in the Lenny White article in FUTURE No. 3. His album is not a first. Your sister magazine, STARLOG, ran a good article outlining the SF-rock connection, but it left out the most radical mixtures. Side one of Rush's 2/12 album is a science-fiction story set to music. A space-rock opera. Patrick Moraz's "i" album is an earlier example of an entire rock album devoted to a science-fiction story. But the closest parallel to White's album is Jon Anderson's *Olais Of Sunhillow*. This is another two sides of pure science fantasy. The cover is the greatest ever made. Inside is a large booklet with fantastic artwork and a complete explanation of the story. The music is terrible but the art is worth the album's cost.

Rick Kiray  
Centerville, Ohio

*Sorry, Rick, our article didn't state that Lenny's album was the first record to deal with science fiction (as opposed to Anderson's excursion into Yes-ish fantasy) but the first (in Lenny's own words) SF "audio film." From the outset, both musical and visual ideas were coupled with a written storyline—a totally unheard of practice in rock and roll. No one, be they Rush, Hawkwind, Moraz or Kiss has attempted to co-ordinate these various modes of SF representation simultaneously before, during the creation of a long playing record.*



## WHO DUNNIT?

...Your third edition of FUTURE left me somewhat confused. In the British Imports part of Video Images you talked about a BBC show called *Dr. Who*. I'm familiar with this show (in fact, that piece was why I ended up buying the magazine) since I've watched it for quite some time on the PBS station in my area. What is confusing me is that in all the time I've been watching the show, I have never seen any mention in the credits of any man by the name of Tom Baker. On all the shows that I've watched so far, the credit for playing *Dr. Who* goes to another man by the name of John Pertwee. If you can, would you please explain to me why the difference. Are there two different people playing the same part or what?

A fan  
Rock Island, IL

*There have been four *Dr. Who's* on this long-running BBC adventure. In order of appearance, *Dr. Who* has been played by William Hartnell, Patrick Troughton, Jon Pertwee and Tom Baker.*

## ERA HAS NO PLACE IN FUTURE

...To paraphrase that sage old philosopher, Emily Litella of *Saturday Night Live*, "What's all this fuss" about the ERA doing in the pages of FUTURE. Granted, I could recognize an editorial position that the ERA has a definite effect on the future course Man takes, and that the ruckus was kicked up by a controversial SF writer—one Harlan Ellison by name.

The above accepted, I however maintain that I purchase FUTURE out of an interest in science fiction and science fact. If I want coverage of such political tug-of-wars, I'll pick up U.S. News or a similar news publication. FUTURE's price is too steep a price to pay, and FUTURE's page count too restrictive, to waste on such philosophical matters. This point made, I urge you all to go on to more fresh and entertaining subjects.

Samuel James Maronie  
Wood River, Illinois

*Sorry, Sam, but your logic escapes us. The name of the magazine is FUTURE and it concerns itself with all aspects of future life. ERA does have a definite effect on the future course humanity takes, just as much as any technological advancement currently in the works does.*

*For someone so interested in science fiction, you seem to find it quite easy to forget that such "philosophical matters" have fascinated SF writers for years—and with reason. Writers such as Huxley, Orwell, Wells, Van Vogt, Gunn, Heinlein, Asimov, Bradbury and Leiber have seen fit to worry about the role of men and women in society in fictional terms. Today's SF fans have a chance to actually put their fictional ideals into a real-life scenario. If "fresh and entertaining" subjects are all you desire in your reading, may we suggest Oliver's Story. To paraphrase another sage old philosopher, Abe Lincoln, who seemed to have foreseen your letter in 1858... "Equality in society beats inequality."*



## BORIS' ART FOR ART'S SAKE

...Effective immediately, please cancel subscription to FUTURE... one look at the cover by Boris is indication enough that trash like that is not a magazine for me to read. Being a teen-ager I'd feel a bit uneasy bringing this copy with me to school to show among my schoolmates.

Gerard A. Gaudio  
9226 N. 13th Pl.  
Phoenix, AZ 85020

...I loved the cover that Boris Vallejo did for FUTURE #3. FUTURE is a great magazine and getting better. I hope that you have more such inspiring covers in the future.

Pancho O. Yarra, Jr.  
235 22nd St.  
Casa Mesa, CA 92627

...I enjoyed that beautiful article you did on Boris. He says he wants everyone to appreciate this work; well, I hope he reads this letter because I want him to know that he is my favorite artist. I would like to point out that in STARLOG No. 4 (pgs. 34-35) there is another one of his masterpieces, and in FUTURE #1 (pg. 28) there is a very different Boris painting.

David Reid  
Kelowna, B.C. Canada

(Continued on page 68)

## CREATE THE FUTURE OF YOUR CHOICE

UFOs, clones, space colonies, immortality, Timothy Leary . . . Got your attention? That's the idea. Successful heads of college speakers bureaus know it pays to create a controversy on campus—then charge admission.

Future Presentations, a Los Angeles-based lecture bureau, has a stable of controversial speakers guaranteed to draw crowds. It may be a sign of the times, but a sure way to spark controversy is to discuss the future with optimism.

"We're not interested in projecting doomsday," explains Jay Levey of

Future Presentations. "There are enough people doing that already. It's easy to just fatalistically *predict* what's going to happen. We're interested in *creating* the future. Our speakers offer multiple options and alternatives, and let people know that they can participate in creating the future."

Future Presentations' most popular speaker to date has been Dr. J. Allen Hynek, the UFO scholar who served as technical advisor on *Close Encounters of the Third Kind* and who heads the Center for UFO Studies. In his slide-

IN 1961, A FRENCH ASTROPHYSICIST OBSERVED SEVERAL STRANGE OCCURRENCES IN THE SKY.

IN 1963, HE ORGANIZED AN UNDERGROUND NETWORK OF UFO SCIENTISTS. IT CALLED ITSELF "THE INVISIBLE COLLEGE."

IN 1977, THIS SAME MAN WAS THE MODEL FOR 'LACOMBE' IN THE FILM "CLOSE ENCOUNTERS OF THE THIRD KIND."

HE IS JACQUES VALLEE



## IMPACT ON CONSCIOUSNESS

AN ILLUSTRATED PRESENTATION BY

DR. JACQUES VALLEE

Future Presentations commissioned Los Angeles artist Scot Thom to do this stunning promotional poster for Jacques Vallee's appearances. Organizations booking Vallee receive a signed, original airbrushed poster for display.

illustrated presentation, Dr. Hynek examines evidence of unidentified flying objects. How do UFOs connect with optimistic future scenarios? Dr. Hynek believes that when the answer to the UFO mystery is revealed, it will mean a quantum jump in human understanding.

Also high on the list of most-requested speakers is Dr. Jacques Vallee, the real-life model for the Francois Truffaut character 'Lacombe' in *CE3K*. Dr. Vallee, a French astrophysicist and international UFO investigator, examines psychological and social aspects of the UFO phenomenon in his talk, "UFO—Impact on Consciousness."

A new addition to the Future Presentation roster is author David Rorvik (*In His Image—The Cloning of a Man*). Rorvik discusses genetic engineering and the potential for "participatory evolution." Controversy guaranteed.

Timothy Leary is another guaranteed controversy-generator. His high-voltage multi-media performance, "From Inner Space to Outer Space," may surprise audiences who aren't up-to-date on Dr. Leary's current trip. The human race, he cheerfully demonstrates, is evolving into a higher species. As a Galactic Intelligence Agency operative assigned to planet Earth, his job is to spread the evolutionary word: SMI'LE (Space Migration, Intelligence Increase and Life Extension). Mind-expanding, to say the least.

Space colonies, anyone? Future Presentations has three speakers well-versed on that subject. G. Harry Stine explores near-term space industrialization and how it will lead to space colonies and more. Keith Henson, co-founder of the L-5 Society, gives a talk accompanied by slides, providing an introduction to the concept. Dr. J. Peter Vajk's space colony talk concentrates on opening options (his soon-to-be-published book on the subject is called *Doomsday Has Been Cancelled*).

"Previews of Coming Attractions" is the title of Barbara Marx Hubbard's theatrical voyage from single-cell life on this planet to our impending birth as a universal species. Mrs. Hubbard co-founded the Committee for the Future, a Washington, D.C., group dedicated to publicizing "choiceful futures."

"Contact With Higher Intelligence" is the title of a fascinating lecture by Robert Anton Wilson (author, *Cosmic Trigger*, co-author of the *Illuminatus*

trilogy). Wilson traces the human experience of contact through the ages. An enlightening journey.

Saul Kent discusses the profound implications of life extension and immortality, which he believes are just around the corner, based on current medical research.

"City Life 2000 A.D." is Daniel Gilbertson's topic. Using slides and video-feedback, he presents blueprints for future urban communities.

Dr. Fritjof Capra, author of the acclaimed *The Tao of Physics*, explores the parallels between the universe of the modern physicist and the eastern mystic.

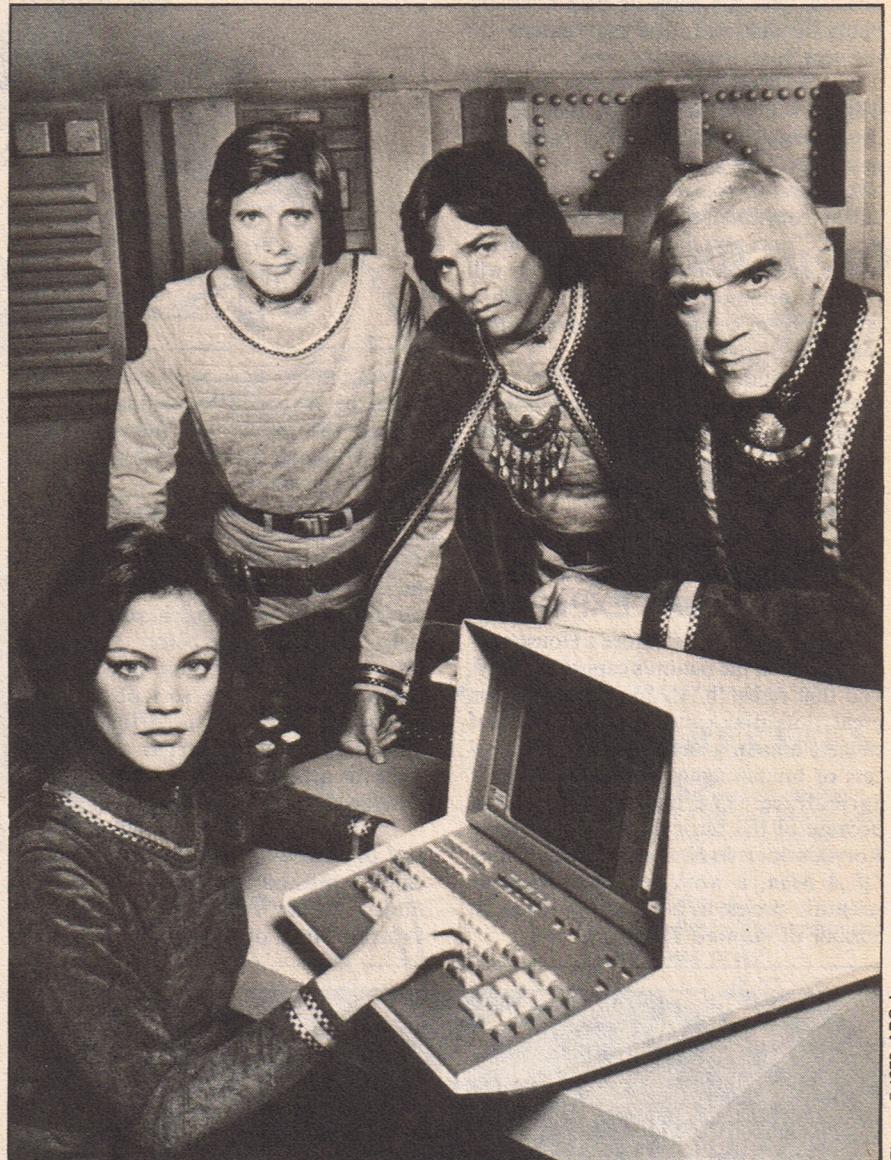
Futuristic philosopher F. M. Esfandiary delivers a dynamic view of the "Age of Breakthroughs—The Next 25 Years." Generally acknowledged to be the ultimate optimist, Esfandiary has a contagious "nostalgia for the future."

For a complete listing of Future Presentations' speakers, information on booking and fees, write to Future Presentations, 1000 Westmount Drive, Suite 128, Los Angeles, Calif. 90069.

## STARLOG ASSEMBLES 2ND SF MERCHANDISE GUIDE

STARLOG magazine, FUTURE's sister publication, is currently assembling its 2nd Annual SF Merchandise Guide—the most comprehensive listing of science-fiction and movie shops, bookstores, mail order suppliers, manufacturers and dealers ever assembled. It will be inserted free in every copy of STARLOG # 18 (on sale October 24, just 2 months before Christmas). Since the 1st Annual Guide proved so successful last year, this 2nd Guide is sure to be seen and saved by hundreds of thousands of SF fans and professionals. It provides a fabulous opportunity to you, the readers of STARLOG and FUTURE, to advertise your products and services to an eager audience and make valuable contacts in the SF field.

Deadline for all listings is August 25, 1978. Any listings arriving in STARLOG's offices after that date will NOT appear in the guide. There are NO exceptions. Complete information rates and forms are available from STARLOG magazine, 475 Park Avenue South, New York, N.Y. 10016. All interested parties are advised to send in their name, address and phone number as soon as possible.



The *Battlestar Galactica* regulars, from left to right: Athena (Marin Jensen) Commander Adama's daughter; ace-pilot Lt. Starbuck (Dirk Benedict); Captain Apollo, Athena's brother (Richard Hatch); and Commander-in-Chief Adama (Lorne Greene).

## NEW FRONTIER IN TV SF: ABC'S BATTLESTAR GALACTICA

The fall TV season is being eagerly anticipated by SF fans. The center of this expectation is ABC's SF adventure-thriller, *Battlestar Galactica*. The series will premiere with a special three-hour episode which is rumored to have cost over \$7 million — certainly a high-water mark for TV budgets. Much of the cost has been used to produce the space battle sequences which open the first

episode. John Dykstra, whose visual magic helped make *Star Wars* such a phenomenon, has refined his technique for television. TV viewers, whose appetite for stunning visual effects has been whetted by *Star Wars* and *CE3K*, will not be disappointed. Further, it has been suggested at ABC that it might be interesting to arrange, in a few cities, for simulcasts in FM stereo. Though such FM simulcasts have, in the past, been pretty much limited to symphony concert and opera broadcasts, there is no reason why such aural delights should be limited to "cultural" broadcasts.

## MILLION DOLLAR TRIP TO SPACE (ALMOST)

An enterprising California engineer has plans for the world's first *individual* space program. Robert Truax (the man who designed Evel Knievel's Snake River Canyon rocket-car) will launch any healthy individual who can come up with a million bucks 50 miles into the atmosphere—to the very doorstep of outer space.

The Volks-Rocket, as Truax calls his design, will consist of four 1000-pound thrust engines gathered from Atlas program surplus, stabilizing gyros from a Nike-Hercules rocket and other hardware culled from discontinued and defunct programs. Truax says the compact vehicle (25 inches in diameter and 24 feet long) will provide prospective astronauts with a 90-98 percent certainty of survival during the maiden voyage.

The round trip shouldn't take more than 10 minutes, and the price tag includes a parachute to slow descent into the ocean, where a 120-foot cutter, two helicopters and a team of skin divers will wait to assist the recovery.

## CLONING A BOON TO SCIENCE, SAY EXPERTS

Scientists testifying before a House subcommittee in the nation's capitol recently, said that research relating to cloning has great potential value to the studies of cancer, human genetic diseases, the process of human aging and some fields of agriculture. The hearing was called because of the furor instigated by David Rorvik's book *In His Image: The Cloning Of A Man*, a work regarded, in some scientific circles, as being as factual as an episode of *Howard The Duck*.

Art: Howard Cruse

Truax thinks the cost of the first flight could be recapped by selling rights to televise the event. The networks have already shown interest in his potential daredevil customers.

Truax predicts he'll launch his first

The book caused concern among scientists that the American public would get a distorted view of biological research. The scientists who testified before the subcommittee stressed the fact that cloning research is not some sort of aberrated reproductive method used for practical immortality but, rather, is a technique used for achieving new understanding of biology at the most fundamental level.

Dr. Robert G. McKinnell of the University of Minnesota testified that through cloning methods, scientists could test a major theory concerning aging. Dr. Beatrice Mintz of the Institute of Cancer

Volks-Rocket by 1980, and already a select few are trying to raise the necessary cash to be on board. Truax plays no favorites, however. As an equal opportunity entrepreneur, he insists business is strictly "first come, first serve."

Research, Fox Chase Cancer Center, Philadelphia, explained that transplanting and manipulating mouse embryo components was leading to increased knowledge in the area of human genetic disease. Dr. Clement L. Markert of Yale revealed that an indirect cloning method already in practice could produce near duplicates of valuable domestic animals.

Absent from the meeting was author David Rorvik who, although asked to testify, cancelled his appearance. The controversial writer was busy promoting his book in Europe at the time of the subcommittee hearing.

## RE-MAKE OF THINGS TO COME

Frank Wells, the son of science-fiction legend H.G. Wells, will act as scientific consultant on the forthcoming Allied Artists production *The Shape Of Things To Come*. The new wide-screen version will be based on the original book by Wells and will stray from the classic *Things To Come* film of the thirties which was actually scripted by the late author.

An all-star cast is currently being assembled in England for the proposed production. Filming is slated for late this year with a 1979 release date desired. Aiding Frank Wells in the supervising end of things will be *Space: 1999*'s Sylvia Anderson who will serve as creative consultant. Executive Producer of the New *Things To Come*, Harry Alan Towers, has revealed that the theatrical release will serve as the basis for a series of half-hour TV programs which will also be distributed in the United States by Allied Artists.

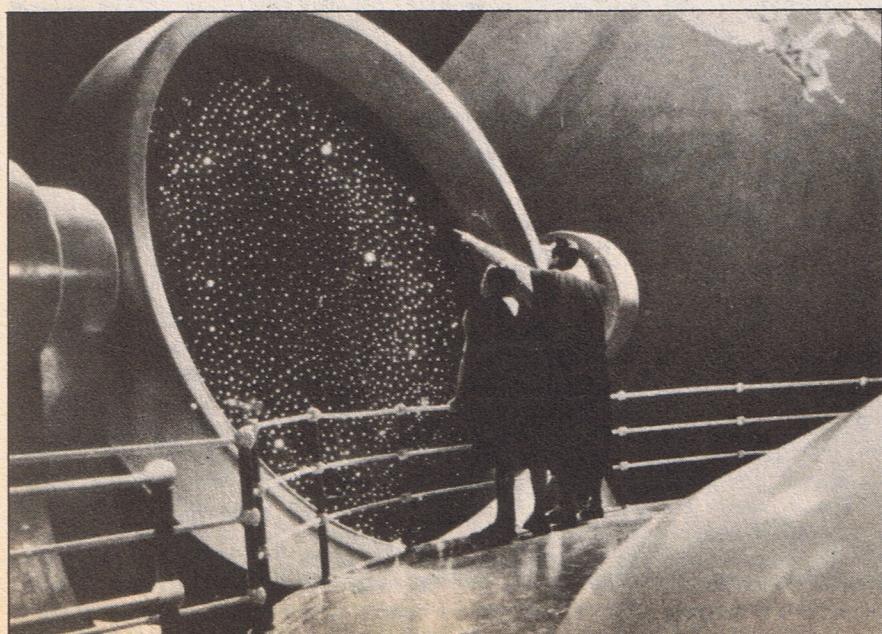
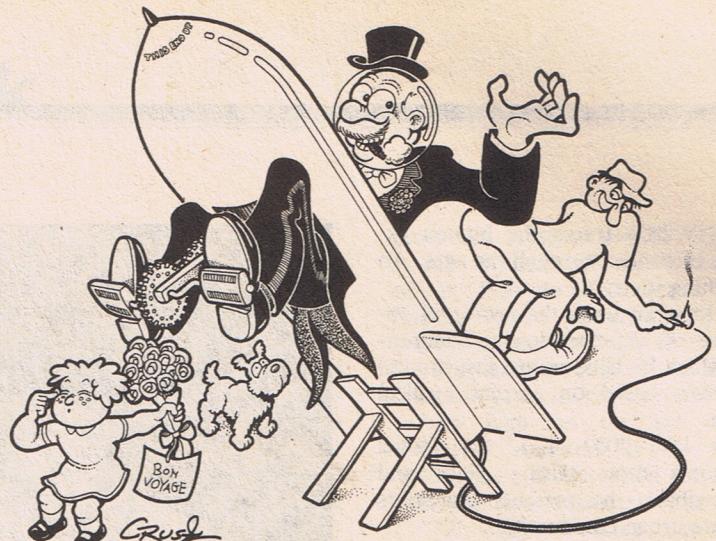
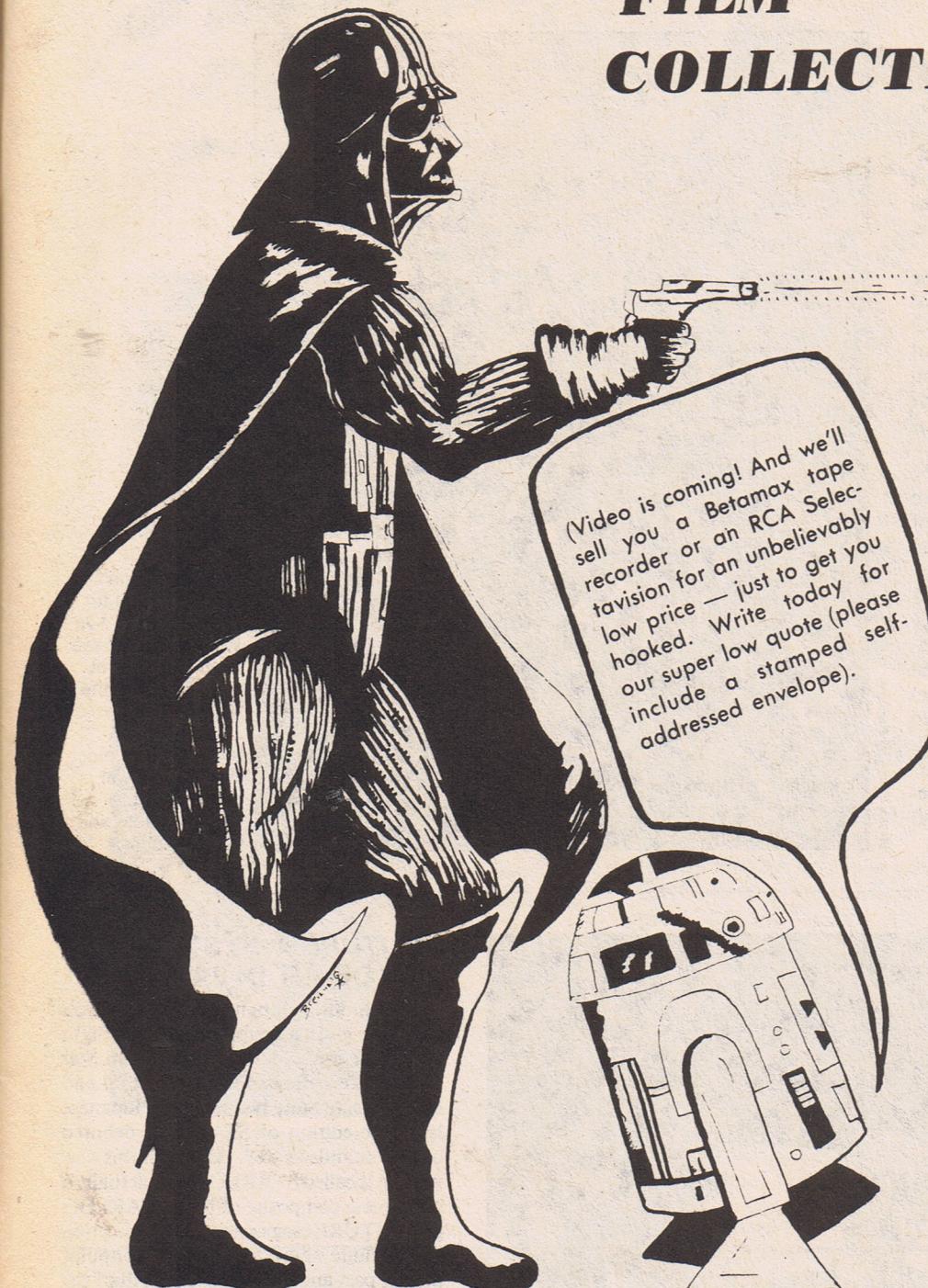


Photo: © United Artists Corp.

Original *Things To Come* (above) was penned by Wells. Today, his son carries on.



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## BANTAM GALLERY SPOTLIGHTS COVER ART

At least once a month, literature lovers run into the same old problem. They buy a book and fall in love with the cover design. It's so impressive that it really should be framed. But who's going to be heartless enough to tear the artwork off the book and hang it on the wall?

The Bantam Gallery just may hold the solution. Bantam Books recently organized its Gallery to create, produce and distribute an extensive collection of moderately priced posters, notecards and matted prints which feature the best of paperback cover designs as well as illustrative book art.

The first series of illustrations from the Bantam Gallery (one of three destined to appear this year) will spotlight a host of fantasy and science-fiction elements. Included in the initial set are *The Earthsea Trilogy* covers (Pauline Ellison's illustration for the Ursula K. LeGuin novels), *The Land Of Froud* collection (fantasy creatures penned by British artist Brian Froud for his Bantam art book of the same name) and *The Fantastic World Of Gervasio Gallardo* (surrealistic fantasy from the internationally acclaimed artist, also excerpted from a Bantam art book). Note-cards retail at 60¢, and color posters and matted prints sell from \$2.00 to \$3.50.

Photo: Courtesy Bantam



Pauline Ellison's cover painting for Ursula LeGuin's *A Wizard of Earthsea* is one of the first offerings from the Bantam Gallery. This and other fabulous full-color illustrations will appear as note-cards, posters and matted prints.



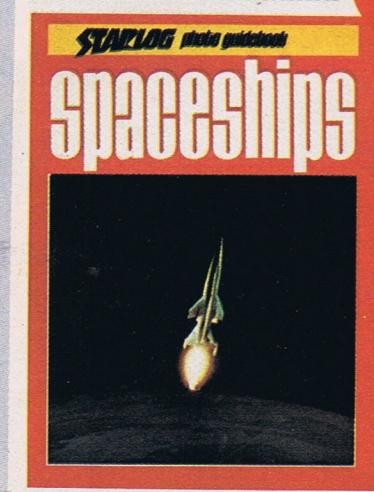
Celebrating the forthcoming Japanese editions of STARLOG, from left to right, Koh Miyamura, Norman Jacobs, Shozo Tsurumoto, Kerry O'Quinn and Jun Shimizu.

## FUTURE AND STARLOG DEBUT IN JAPAN

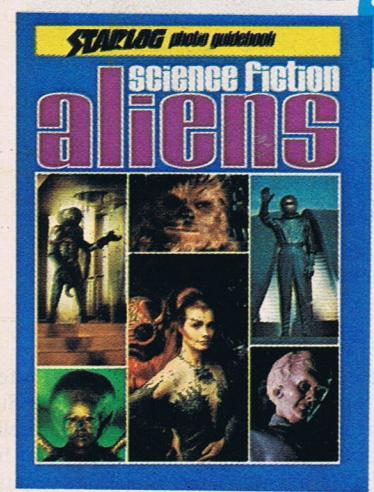
Last month, Japanese science-fiction fans were given a double dose of top flight science fiction. Not only did the film *Star Wars* make its first appearance in the Land of the Rising Sun, but the first Japanese language edition of STARLOG debuted on newsstands as well. Although this new version is called STARLOG, it is actually a Nipponese composite of both STARLOG and FUTURE magazines. The publication will include some of the most popular pieces, past and present, from both of the American magazines and reprint all of STARLOG's and FUTURE's spectacular color photos. The initial issue offered STARLOG No. 7's cover article on *Star Wars*.

Although both STARLOG and FUTURE have foreign subscribers to the English language editions of the magazines, this is the first foreign language version to appear. Watch future Databank items for more news on upcoming foreign language editions as STARLOG and FUTURE make their way across the globe.

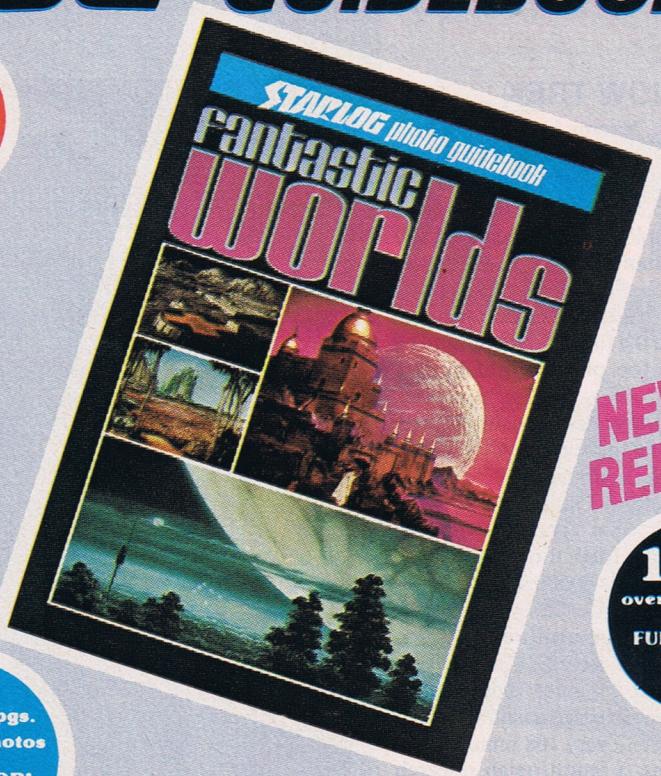
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## SNOW TREK

For 54 days, Naomi Uemura was no more than a blip on a satellite monitor. Under the watchful "eye" of Nimbus 6, a NASA meteorological probe, the 37-year-old Japanese explorer recently crossed 500 miles of Canadian polar ice to reach the North Pole. (See Databank, FUTURE # 3.) He and his 19 canine companions thereby became the first solo expedition to make it to the top of the world by dog sledge.

And as if that were not enough, Uemura and company set off across Greenland. This second trek, completed by late July, was also followed by Nimbus 6.

Through a special arrangement with The Smithsonian Institution, Nimbus 6 monitored Uemura's progress north from Ellesmere Island in the Canadian Northwest Territories. A unique, battery-powered beacon, fitted to Uemura's sledge, transmitted regular radio signals 600 miles skyward to the satellite, which completes its orbit every 108 minutes.

Lee Houchins, a Smithsonian research associate who conceived and directed the tracking project, explained that readings from Nimbus 6 will be compared with Uemura's dead-reckoning navigation techniques and sextant sightings.

"We've already determined that present maps of northern Greenland are in error," Houchins admitted. "Uemura went along the coast, but according to the maps, he was at sea." Houchins estimated that current land surveys may be off by as much as 11 nautical miles, as hinted in past studies.

NASA and Smithsonian weren't the only ones interested in Uemura's travels. The National Geographic Society contracted with the explorer for an exclusive account of his journey to the Pole. NG spokesman Paul Sampson said that along with material from his personal diary, the September issue of *National Geographic* will highlight photos taken by a photographer who was flown in for several rendezvous with the expedition.

Two Japanese publications, Mainichi newspaper and television network and the magazine *Bungei Shunjū* (who, coincidentally, served as the primary financial backers, covering costs estimated at well over \$.5 million) have also chronicled the exploits of Uemura. Some of the juicier episodes will detail a close encounter with a hungry polar bear, and an accident that temporarily knocked out his satellite beacon.

What's next for the restless Uemura? While his dog team takes a well-deserved furlough, he plans to brush up on his English and learn to fly an airplane.

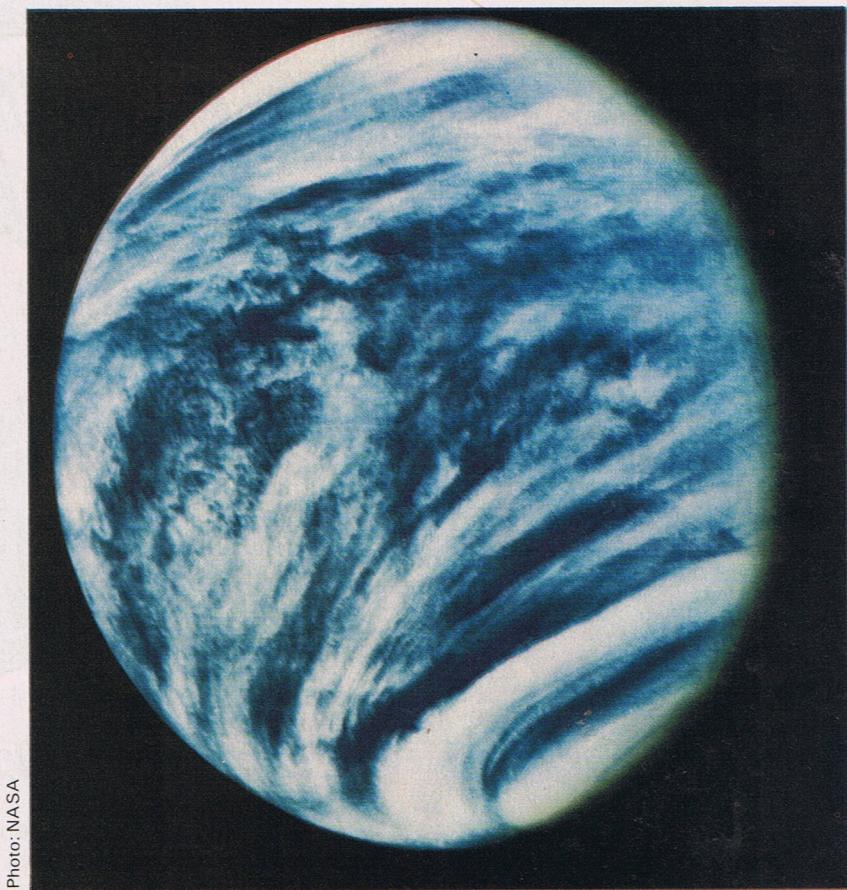


Photo: NASA

Venus will be invaded by mechanical visitors from Earth in December. This view was returned by Mariner 10, which passed within 450,000 miles of Venus in 1974.

## HOT CHRISTMAS IN STORE FOR VENUS PROBES

In December, the first two American spacecraft will arrive at Venus. Scientists believe that a closer inspection of our mysterious neighbor will provide important clues to questions about weather and atmospheric conditions on Earth.

"The big question is why Venus differs so much from Earth," explains project scientist Larry Collin.

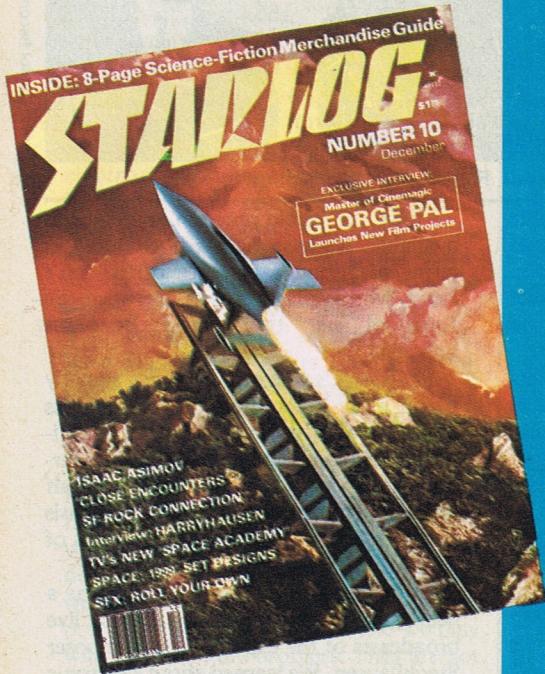
The two planets have about the same mass, were probably formed from similar materials and are situated at comparable distances from the Sun. Venus is approximately 26 million miles closer to the Sun, but that's not near enough to account for the enormous difference in temperature. Soviet probes have measured the surface temperature of Venus at 900 degrees F. Why is Venus so hot? Could Earth end up in the same condition?

Maybe so, according to the most plausible explanation for the permanent Venusian heat wave. That theory holds that the

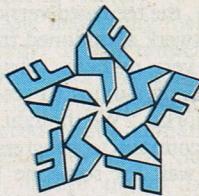
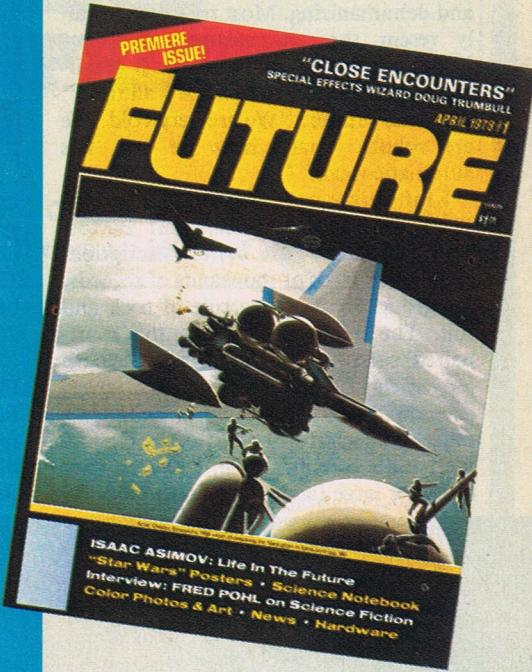
carbon dioxide atmosphere creates a "greenhouse effect," trapping the Sun's heat on the planet. Some scientists believe that the continued burning of fossil fuels on Earth could lead to the same situation, raising our world's temperature and causing catastrophic side effects—such as melting the polar ice caps.

The Pioneer Venus program, the only U.S. planetary mission this year, will start answering some of those questions in December. Pioneer Venus 1, launched last May, will orbit the planet and take ultraviolet pictures of cloud formations. Pioneer Venus 2, scheduled for August launch, will split into five separate probes which will each make kamikaze dives to different locations on the planet's surface. On the way to oblivion, these instrument-laden probes will gather valuable data on the alien atmosphere for transmission back to scientists on terra firma. Noteworthy detail: portholes on the probes are made of the only transparent materials tough enough to withstand the searing heat—diamond and sapphire.

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## GERMANY'S MUSIC MACHINES MARCH ON

A lot of contemporary music's harshest critics accuse it of being both redundant and dehumanizing. Most rock stars totally resent those accusations...but not Kraftwerk, a German band that is admittedly *different* than most. "It's all true," says Ralf Hutter. "We are very cold. We are robots. That's how we feel. It's automatic music."

Kraftwerk is a contemporary foursome (Ralf, Florian Schneider, Karl Bartos, Wolfgang Flur) that defies description. Selling hundreds of thousands of records, the group breaks every rule of rock and roll. The quartet looks like the short-haired offspring of the German youth movement of the thirties, plays overextended electronic melodies and never moves while performing on stage. Despite the band's eccentric style, however, they attract a large (albeit confused) youthful



Flesh-and-blood version of Kraftwerk: Ralf, Florian, Karl and Wolfgang.

unobtrusively in the background while synthesized rhythms and distorted vocals drone from stereo speaker to speaker. The finished product sounds like a duet between Robby the Robot and several of 2001's humming monoliths.

"Our sound is very metallic," admits Florian. "We use standard synthesizers but we also use a lot of automatic music programming machines. We use a lot of devices gathered from the computer data field which are not exactly musical in-

we have the whole range of soundwaves available. Because we are not limited in terms of sound range, we often don't know who is playing what. Between the four of us, the sound becomes universal."

Kraftwerk's universal robotics actually began quite innocently enough when its members were young boys playing traditional German classical music. "But Germany is a very scientific country," Ralf explains. "There is always an emphasis put on scientists. We feel like the sons of Wernher von Braun.

"When we were children, there was a nearby radio station that used to play live broadcasts of the experimental composer Stockhausen. We learned about electronic music when we were very young."

As a result, the teenaged version of the current Kraftwerk abandoned traditional music ideas very quickly, starting their own Kling Klang studios to record their embryonic works. "We thought it would be better to continue to progress than sit around and wait for someone from the outside to come in and discover us," recalls Ralf.

Gradually, the band began evolving into their present state; a state wherein tradition is considered verboten. "We don't think in terms of music," Ralf says. "We are interested in the world of sounds. We listen to anything that produces sounds. We call this 'tape consciousness,' because we feel that we have inborn microphones in our ears, like tape recorders. We walk around and record both the inner and outer sounds and then reproduce all this on our electronic music machines. We think of ourselves as builders of sound."

"We were very much influenced by the futuristic silent films of Fritz Lang; *Metropolis* and *Dr. Mabuse*. We feel that we are the sons of that type of SF cinema. We are the band of *Metropolis*. Back in the twenties, people were thinking technologically about the future in physics, film, radio, chemistry, mass transport...everything but music. We feel that our music is a continuation of this early futurism. When you go and see *Star Wars*, with all its science-fiction gadgets, we feel embarrassed to listen to the music...nineteenth century strings! *That* music for *that* film! Historically, we feel that if there was a



Photo: Ebet Roberts

During a recent appearance in New York City, Kraftwerk's performance was handled by mechanical stand-ins. "We are the robots," Kraftwerk cheerfully admits.

following.

"Kraftwerk's sound is hard to comprehend," says Ralf, "because it goes beyond musical categories. It doesn't fit into the guitar-hero culture. I think our music has more to do with science, science fiction or futurism than with traditional musicianship. Mainly we are turning knobs and using filters, oscillators, switches, faders and cables. When we are on stage, we're not jumping around and playing loud music. We are standing there, creating sound."

Describing the "sound" created by Kraftwerk (a German word meaning "electric power plant") is nearly impossible. Unearthly drumming rumbles

struments but have been modified by some inventor friends of ours. We use a synthetic drum system. We also use the human voice as an instrument."

"We modify vocals by using computers," Ralf adds. "We also make use of the singing typewriter. It's a computer terminal part. We took a terminal keyboard and connected it with different duplications of sounds made by the human voice. In storage, we have all the ingredients for a vocal. By pressing different keys, you can create different vocal lines. You can also modify the pitch of the voice so it goes much further than even opera singing. A singer or an instrument has a certain musical range, whereas

music group in *Metropolis*, maybe Kraftwerk would have been that band."

Ralf is at a loss to explain why it has taken electronic music so long to develop, to catch up, but adds, "The sound producing materials were just not present in the twenties. It wasn't until the 1950's that creative people began experimenting, and many of them were former radio engineers. Remember that a lot of the first electronic instruments weren't really instruments but pieces of broadcasting equipment; oscillators, antennas, tuning instruments. Even when electronic instruments were being pioneered, people wound up playing silly things like 'The Star Spangled Banner' on them. You still have silliness like Walter Carlos playing Bach on a synthesizer. Why take a piece of futuristic hardware and use it to mimic something from the past?"

On their newest album, *Man-Machine*, Kraftwerk takes their metallic concepts to their fullest extremes. They become one with their instruments, in thought and deed. "The machines are part of us and we are part of the machines," Ralf expounds. "They play with us and we play with them. We are brothers. They are not our slaves. We work together, helping each other to create.

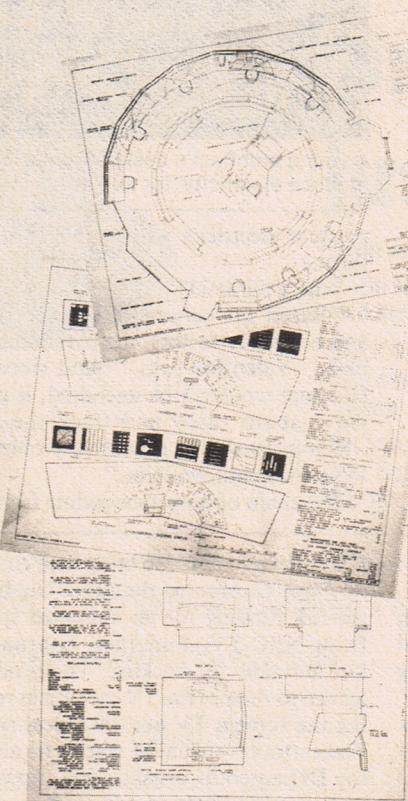
"People fear losing their humanity to technology. That's nonsense. A human being in contact with a machine becomes *more* of a human. There is so much to be discovered about human beings from machines. They mirror our personalities and we, in turn, mirror the image of the machine. Today's society is technologized, no matter how you might want to avoid that fact. If you dismiss technology as a toy, you're only acting out of fear. It's basically man's fear of being dominated or his desire to dominate that causes so much harm in regards to technology. Whereas if you cultivate a symbiotic relationship with machines, everyone benefits. When you're working with machines, your most basic elements are revealed. There's no room for pretension. You get to the basic structure. That's why a man-machine union is so healthy."

In Kraftwerk's eyes, their sound is nothing short of the sound of tomorrow. Sleek. Ever changing, yet constant. Dehumanized. With success now assured and their fans yearning for new albums yearly, there seems to be no stopping Kraftwerk from their futuristic designs. Well, almost. In France recently, when the band decided to play overtime on stage, a nearby guard *did* manage to come up with a way of knocking the foursome cold. And just how did this one frail human succeed in bringing the electronic sons of *Metropolis* to their knees before a capacity crowd of ardent fans? Ralf shrugs his shoulders in dismay. "He pulled out our plug."

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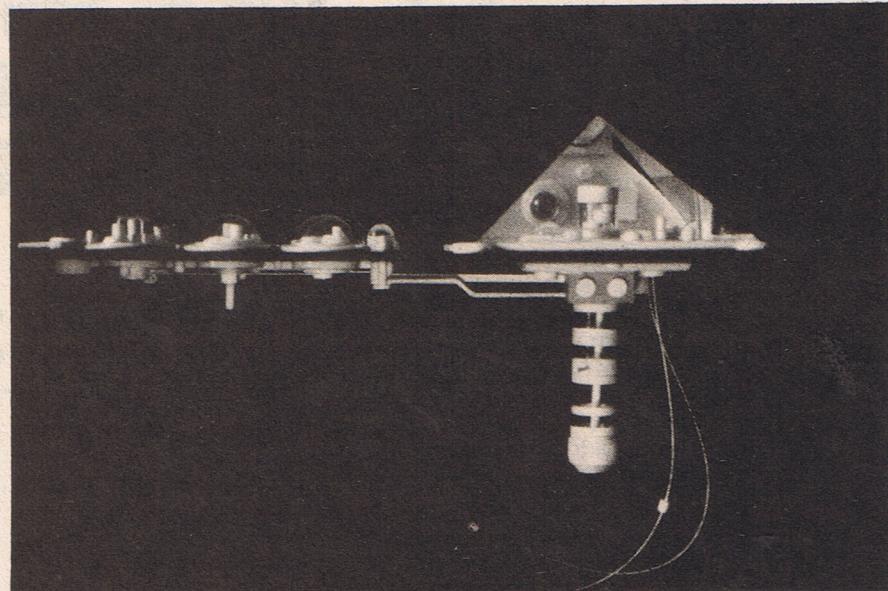
## SEAFARING PYRAMID

"I call it an Offshore Satellite," explains architect Stephen A. Valentine, 24, "because it was partly inspired by Gerard O'Neill's space habitat idea. It's a self-sufficient community that would produce surplus electricity and food. Only instead of being in space, it's in the ocean."

Valentine built the scale model of his "oceanic generating station and habitat" two years ago while he was a student at New York's Pratt Institute. It was recently included in a Sun Day exhibit sponsored by the American Institute of Architecture in New York City. Response to that show has rekindled his interest in working out the details of his concept.

Valentine's futuristic floating design is an elaboration on a much older idea, that of utilizing thermal gradients in the ocean to produce electricity. By bringing cold water up from the bottom to interact with warmer topside water, electricity can be generated. Valentine speculates that plankton harvest and mineral extraction could be byproducts of the electricity-producing process.

The pyramid-shaped main structure would serve both as an enclosure for a city and as the processing plant for power generation. Valentine would leave two sides of the pyramid transparent to admit natural sunlight, and cover the other two walls with photovoltaic solar cells, which



A young architect's design for a self-contained city on the ocean that would produce electricity for export to shore and harvest plankton for future food.

produce electricity when sunlight strikes them.

### Why a pyramid?

"Based on volume-to-surface ratios and buoyancy factors, the pyramid looks best," Valentine says. "And since the structure wouldn't be anchored, it could move about easily and track the Sun, which is usually an expensive problem to solve with photovoltaics."

The chain of domes extending from the

main structure could house various industrial manufacturing units, which would use the cheap electricity produced on location. Surplus electricity could be exported to energy-hungry landlubbers.

"We keep reading about energy shortages and food shortages and overpopulation," notes Valentine, "but we haven't even begun to use 75 percent of our planet. I think the oceans will play a much more important role in our future."

## TV FLICKS = SF PIX

The current television trend of airing made-for-TV science-fiction films has led to the creation of two forthcoming theatrical releases. Filmation Studios, one of the most popular television sources of animation, in conjunction with Dino DeLaurentiis has announced the creation of a pair of multi-million dollar live action motion pictures centered around current Filmation TV offerings.

The whole snowball effect started when

Filmation attempted to bring their concept of *Flash Gordon* to the tube. Unable to get full funding for an animated special from NBC-TV, Filmation approached DeLaurentiis for backing. The producer agreed to finance the TV cartoon in return for the foreign TV and theatrical rights. The cartoon version set wheels turning in the DeLaurentiis organization, however, and soon, production will start on a \$12 million live movie version of *Flash*.

Also announced as a fall '79 production is a second "live" space adventure, *Seven*

elligence program.

NASA, proposing to spend \$14 million over the next seven years in an attempt to find intelligent life in outer space, incurred Proxmire's wrath because, in his opinion, "this project should be postponed for a few million light years." (A light year like a parsec is a measure of distance, not time. Ed.)

"...This is a low priority program which at this time constitutes a luxury which the country can ill afford," the learned Senator continued. "First, while theoretically possible, there is now not a scintilla of evidence that life beyond our own solar system exists... If NASA has its way, this spending will go forward at a

*Warriors-Seven Worlds*, a Filmation project backed again, in part, by DeLaurentiis. This film will use special-effects techniques pioneered by Filmation in their CBS-TV series *Space Academy*. Both Filmation and DeLaurentiis are pleased with their pair of joint ventures. "We put Dino in the animation business," mused Filmation's Norm Prescott recently, "and Dino put us in the theatrical business." If their initial co-productions are a success, both parties foresee a long, fantasy-oriented film future together.

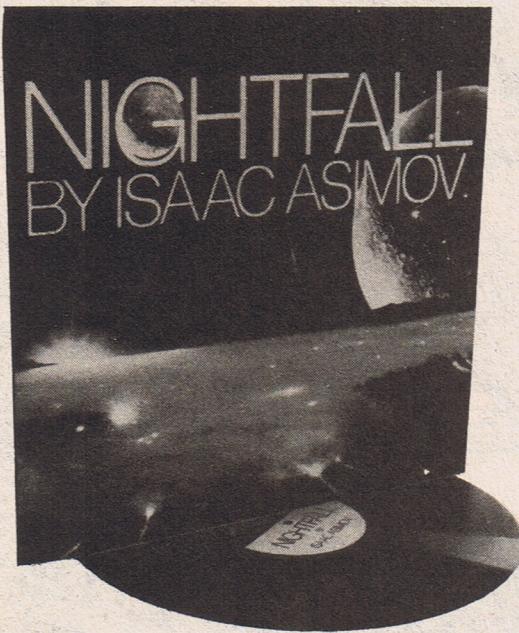
time when people here on Earth... Arabs and Israelis, Greeks and Turks, the United States and the Soviet Union, to name a few—are having a great difficulty in communicating with each other.

"Second, what if from some place, somewhere a radio message had been sent? The Earth is four and one-half billion years old. Some solar systems are ten to fifteen billion years old. If we intercept messages sent from them, they would have been sent not only before Columbus discovered America or the birth of Christ, but before the Earth itself existed. The overwhelming odds are that such civilizations, even if they once existed, are now dead and gone."

## PROXMIRE VS. ALIEN INTELLIGENCE

Once a month, Senator William Proxmire (D-Wis) gives a *Golden Fleece* award to an organization or individual responsible, in his opinion, for the most ironic or ridiculous example of wasteful spending during a 30-day period. Earlier this year, Proxmire, the Chairman of the Senate Banking, Housing and Urban Affairs Committee and of the Senate Appropriations Subcommittee, targeted NASA for the dubious "fleecing" honor. And the reason for the hubub? SETI, NASA's Search for Extra-Terrestrial In-

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## STAR WARS ART IN NEW YORK

New York science-fiction fans are getting a treat this summer courtesy of Supersnipe, Manhattan's Comic Art Gallery. Last June, a show entitled *The Designing Of Star Wars* made its debut much to the delight of *SW* fanatics. Included in the colorful display are original design paintings and sketches by artists Ralph McQuarrie and Joseph Johnston tracing the development of the film. Various artforms are showcased, including temperas, acrylics, pencil sketches, pen and ink designs, lithographs and dye transfers. For any *Star Wars* followers who have thus far missed the show, *The Designing of Star Wars* will run until September 2, 1978.

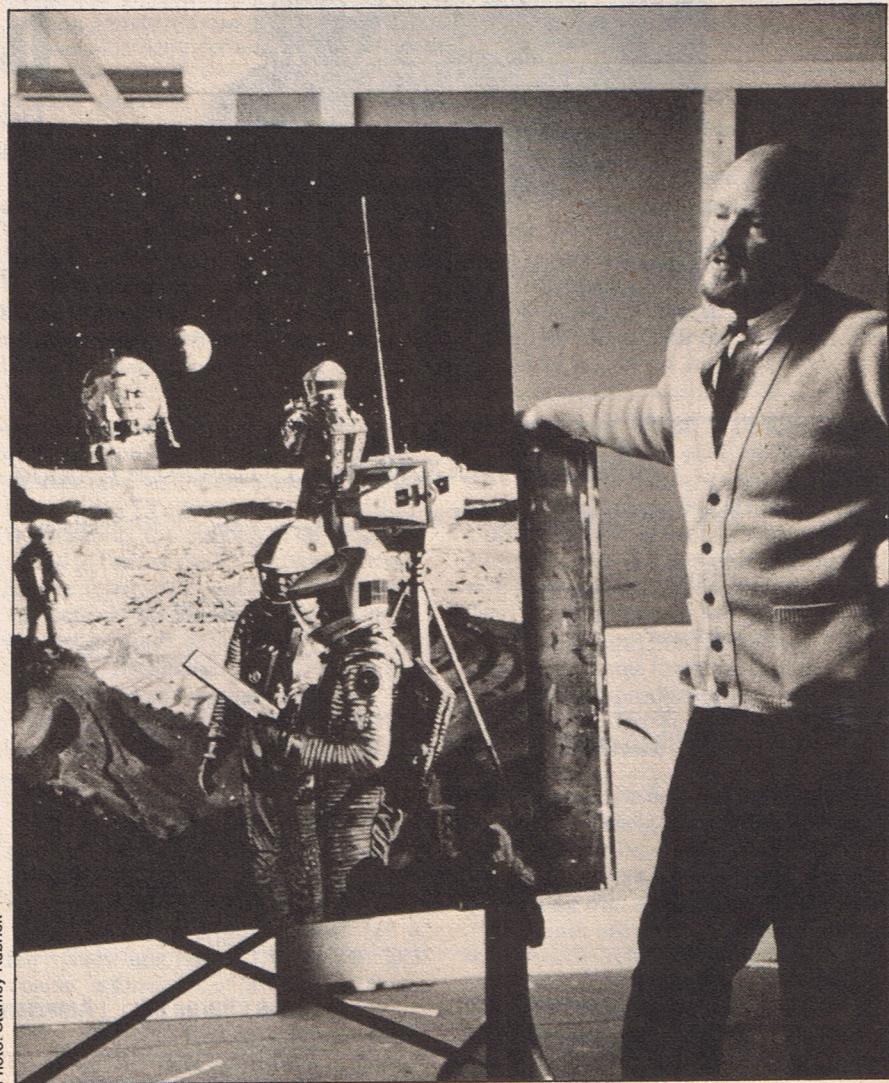
## TOMORROW'S FORECAST: DISASTER

Everyone talks about the weather, goes the old saying, but nobody does anything about it...until now! Slated to begin production this winter is a 12 million dollar opus entitled *Weatherman*, a futuristic tale wherein mankind does everything about it—controlling the weather at will. Completely dominated by the altruistic side of technology, Mother Nature is lulled into a state of serenity. Activated by unscrupulous minds, however, she unleashes a horde of hurricanes, blizzards, tornadoes, droughts and tidal waves upon the Earth. A sizeable portion of the forthcoming film's cost will be budgeted for large scale special visual, mechanical and sound effects involving space, weather and water.

Making his directorial debut in *Weatherman* is Joe Alves, no newcomer to the wild world of special effects. As a production designer for *Jaws* and *Close Encounters* and as associate producer of *Jaws II*, Alves has participated in more than his share of larger-than-life celluloid scenarios. It was Alves, for instance, who designed the man-munching sharks for both *Jaws* films and who provided some of the unworldly animated effects in the classic *Forbidden Planet*.

Aiding Alves in envisioning the climactic climate of the future will be world famous space artist Bob McCall, who first achieved fame with movie audiences with his *2001: A Space Odyssey* paintings. Fresh from his pre-production artwork chores for Disney's *Space Probe* and NBC's forthcoming *Buck Rogers*, McCall has been signed to formulate "design concepts" for this encounter with the elements.

*Weatherman* is the brainchild of writer/producer John Chavez, a 26-year-



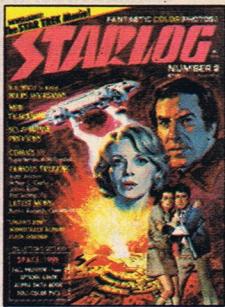
Space artist Bob McCall (pictured here with his poster for *2001: A Space Odyssey*) will fashion the look of *Weatherman*, a big-budget futuristic epic in the works.

old movie newcomer with a degree in Philosophy and Communications. The big-budget drama is being produced in-

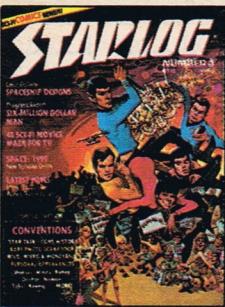
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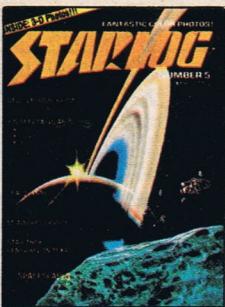
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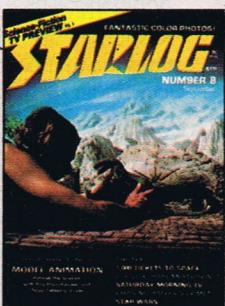
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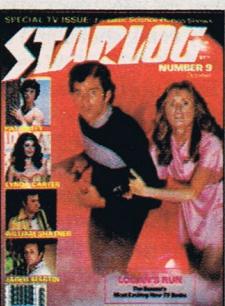
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"The Prisoner," Computer Games, The Superman movie, "Incredible Shrinking Man," SP FX: The Makeup Men, SF Comics.



**No. 12 —**  
"Close Encounters" Part 2, "Star Trek II," Computer Animation, "Laser Blast," Art by Bonestell, The Makeup Men, cont.



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# EARTHPORT

## GATEWAY TO THE STARS

By ROBIN SNELSON

**T**he year is 2000 A.D. A small sunny island crossed by the equator has become a hub of international commerce and a key to the industrial and social usage of space. It is called Earthport: a sprawling complex of tropical-urban architecture grown up around an international space transportation center. The city is home to all peoples of the world, campus to students attending the World Space Center — the first university with classrooms in space, and way station for spacefarers on their way to the High Frontier.

**B**usiness is brisk in Earthport's free-market zone (where taxes are non-existent) as wizards of commerce trade in space real estate, products of zero-g industry and extraterrestrial resources. In the 21st century Earthport is a bustling planetary community and international gateway to space.

However, back in this part of the 20th century, Earthport is merely a concept, one man's vision. The core of this future spaceport is a bundle of handsomely produced brochures that describe the Earthport Project—a study being sponsored by the Sabre Foundation.

Heading up the Earthport Project is its creator and Executive Director, Mark Frazier, a 26-year-old Harvard-educated writer and consultant who thinks he's hit upon a way to encourage commercial space ventures, while at the same time providing developing countries with access to the benefits of space technology.

His idea is to establish a launch site on the equator to take advantage of low-cost launch economics, and combine it with a freeport or "free trade zone," where the absence of government controls on business would stimulate investment and industry. Frazier's research indicates that such an arrangement could be so profitable that a portion of the revenue could be

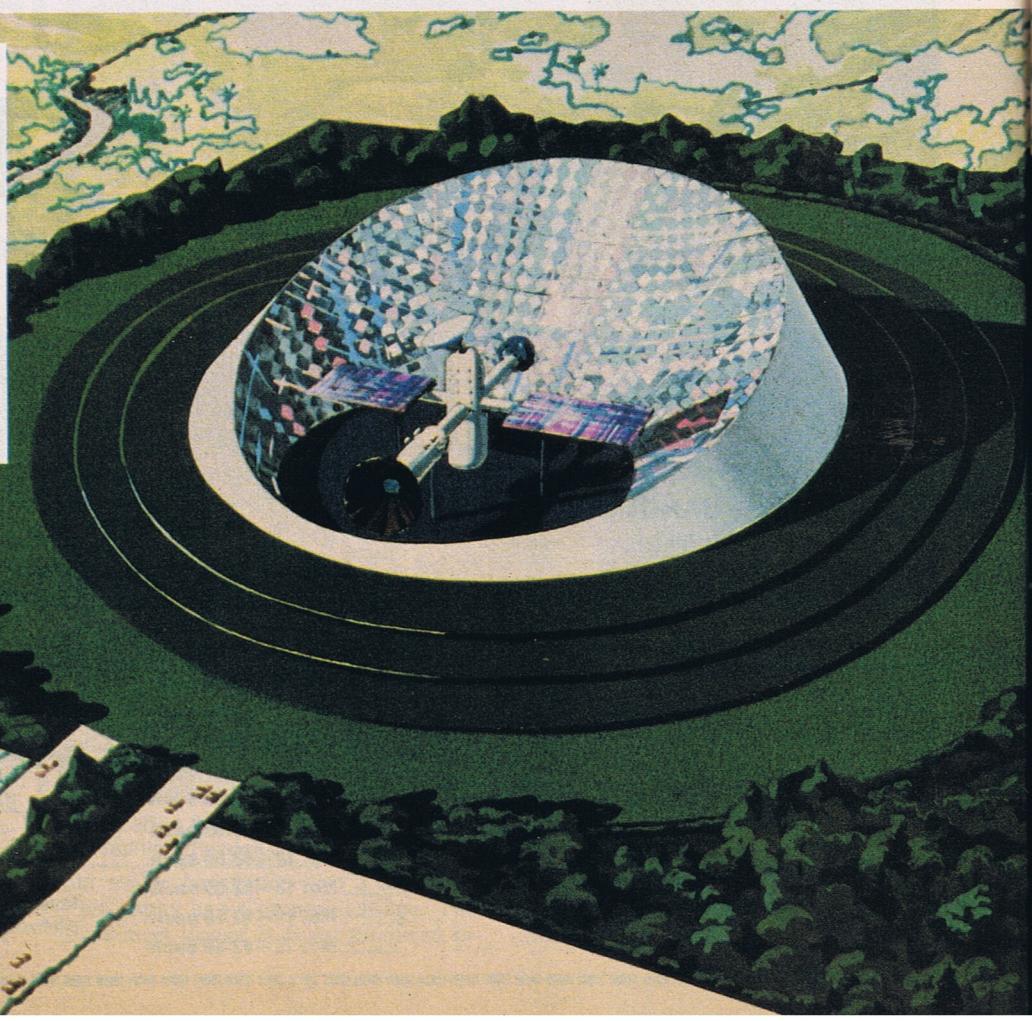
earmarked for training centers and orbital launch subsidies to help lesser-developed countries enter the space age.

Frazier has enlisted an impressive board of advisors and study participants in the Earthport project, among them venerable SF author Robert A. Heinlein, futurist/designer Buckminster Fuller, former Apollo astronaut Phil Chapman, Jet Propulsion Laboratory co-founder Frank J. Malina, and a growing list of experts in areas ranging from aerospace engineering and space law to business and international affairs.

The Earthport Project recently queried leaders of several equatorial nations to test the waters for a possible location. Responses are still arriving, and indications are that Earthport will have no problem finding a host country once it's ready to go into business.

"The President of Liberia would gladly welcome the establishment of an international space launch center on Liberian soil," responded the ambassador of that west African country, which already has a successful free trade zone.

The chairman of Indonesia's space institute replied, "We definitely would like Indonesia to be considered as a site for Earthport," then followed up with a telegram which stated: WE HAVE FOUND AN ISLAND WHICH IS CROSSED BY THE EQUATOR AND WHICH HAS A MINIMUM OF RAINFALL AND WE ARE STUDYING THIS



## SITE FURTHER STOP.

The head of Brazil's space program, Dr. Nelson de Jesus Parada, is a member of Earthport's Board of Advisors, and recently representatives from Sudan and Kenya joined the project. Panama, Rwanda, Sierra Leone and the Cook Islands have also expressed interest in Earthport, and a tiny Pacific island nation called Nauru would like to be considered as a tracking station site, since it's too small to house an entire launch facility.

Potential Earthport countries may be ready, but at the moment Earthport is not. It is still a paper study and its eventual existence hinges on several factors—the most important of which is an acceleration of commercial activities in space.

For Earthport to be successful, it must make money. To make money, it must attract a large number of launch customers. Where will those customers come from?

"When the price goes down," Mark Frazier observes, "the market grows. Many countries which don't even have a reliable telephone system, for instance, could benefit enormously from a communications satellite. I think that Earthport's unique combination of low-cost launches and technical training, plus the free trade aspect, could open a whole new market for launch services."

And as Frazier is well aware, assuring wide international participation in off-planet endeavors will help stave off potential conflicts in space—and open the door

to commercial enterprises.

"I think that if Earthport or something similar doesn't happen," Frazier speculates, "the 'club' of spacegoing countries will try to keep their hold on space and the developing countries may put forth proposals which, to preserve their interests, could result in slowing progress on things like solar power satellites and space settlements."

The situation is already getting tense. A group of equatorial nations recently "claimed" geosynchronous space—that valuable orbit 22,300 miles above the equator where communications satellites must be placed and where power satellites might eventually be located. The claim is not recognized by the United Nations, but it's an indication of sticky situations which might arise for prospective space industrialists. Existing U.N. treaties on the peaceful uses of outer space specify that space efforts should be conducted for the benefit of everybody on the planet.

"The most fundamental contribution I think Earthport could make," Frazier says, "would be to provide a framework for the peaceful development of space."

While Earthport is waiting to happen, a prototype World Space Center may materialize very soon. World Space Center is an integral element of the Earthport plan; it is envisioned as a training center intended to transfer space technology and know-how to developing nations. According to current plans, the first such training

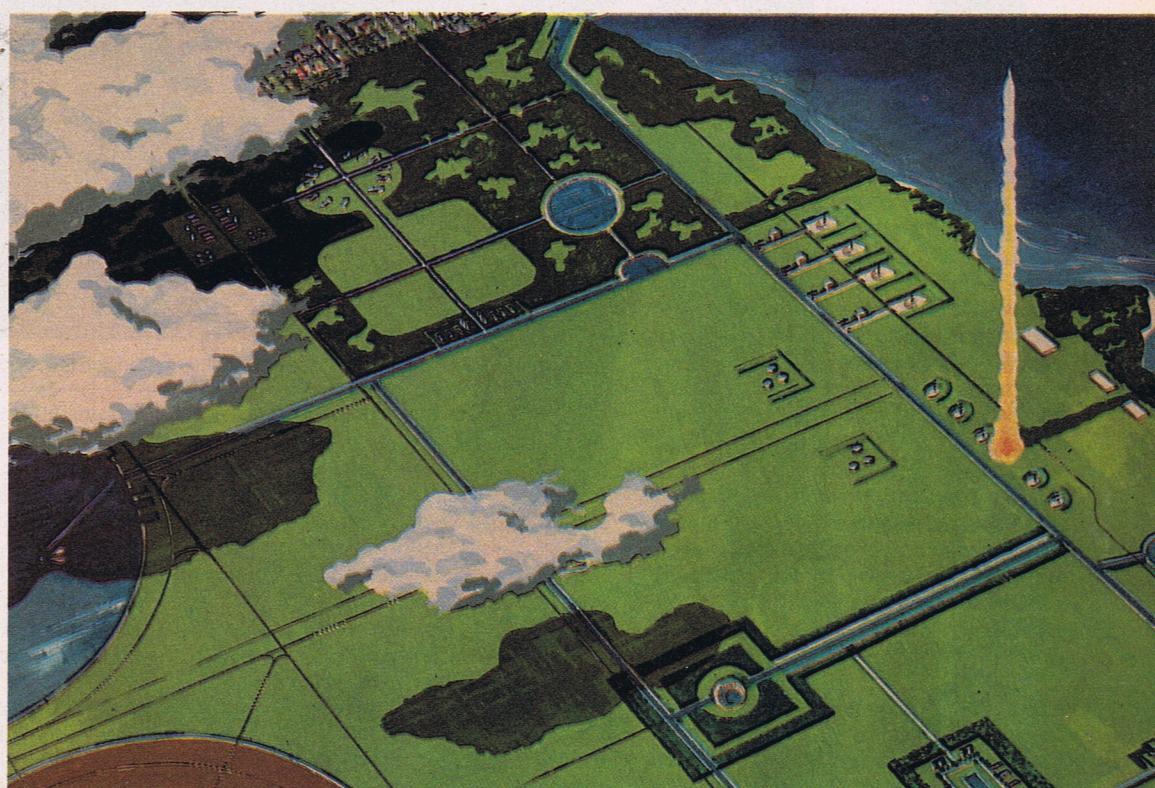
center will be opened in Santa Barbara, Calif., and its first students will likely be NASA overflow.

Representatives of developing countries can now take part in a NASA program which teaches them to analyze data from remote sensing satellites such as Landsat. Making use of Landsat data is a highly technical process which involves translating digital bits of information relayed from the satellite into computer-enhanced images. Using these images, a trained analyst can spot natural resources, water supplies and blighted crops.

But NASA's program is booked up more than a year in advance, according to Frazier. And all that data is useless to someone who doesn't possess the skills to analyze it. Frazier thinks World Space Center could take up some of the slack, and he's busy lining up remote-sensing experts to serve as instructors.

The Santa Barbara set-up could well be an important first step toward the eventual establishment of a full-fledged Earthport—while making an effective stab at spreading the wealth from space more evenly around the planet.

As the Earthport Project picks up steam, it will raise important questions and, hopefully, offer some intelligent solutions. Will that bustling planetary departure point to space ever exist? A project of these dimensions calls for big thinking. Frazier remarks, "We'll shoot for the stars and maybe get to L-5!"



Artist's concept of an early Earthport layout (above) with a heavy-lift rocket taking off. In the lower left corner are landing pools.

At left, a view of an advanced World Space Center, a training center and research facility to be financed by leasing revenue generated by Earthport's commercial customers. Photo inset is Mark Frazier, Executive Director of the Earthport Project.

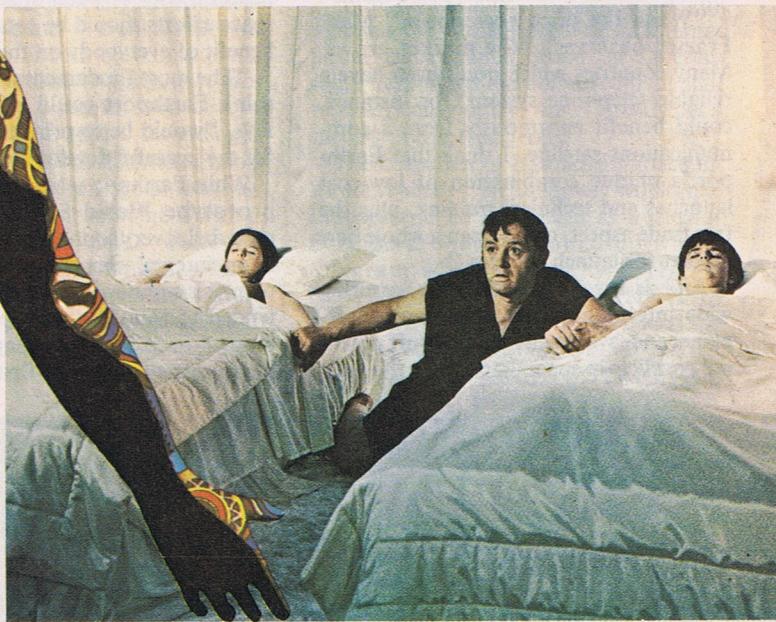
Art: James McMenamin, © Earthport Project  
Art: © Spaceport Enterprises

# THE BRADBURY CHRONICLES

*This year, Ray Bradbury has produced his first collection of science-fiction stories in over seven years. What has this SF titan been doing all during the great SF boom of the seventies? Simply everything . . . from composing spacey poetry to constructing a city of the future time machine.*



Photos: © Warner Brothers-7 Arts.



Above: two scenes from the film version of Ray Bradbury's *The Illustrated Man* as well as the color illustration used for the advertising poster. The film, starring Rod Steiger, was not considered an all-out success. It combined several stories from the original collection with a Hollywood-handled illustrated storyteller.

## By DR. JEFF ELLIOT

**R**ay Bradbury enters his home-based office, shuffling through an ocean of debris. Scattered about the room is a lifetime's worth of memorabilia which, like Bradbury's work itself, is a curious mixture of science fiction, fantasy and everyday

cionados worldwide for underlying meanings and intellectual bon mots.

Sitting next to his cheerful (albeit strangely reserved) friend, Bullwinkle Moose, Bradbury reflects on his current status as an SF guru. "I write for fun," he says modestly. "You can't get too serious. I don't pontificate in my work. I have fun with ideas. I play with them. I



All Photos: Richard Todd

Bradbury relaxes at home; a structure housing a lifetime of SF-fantasy memorabilia.

life. SF classics are haphazardly stacked next to a larger-than-life stuffed version of Bullwinkle the Moose. A portrait of Edgar Allan Poe gazes down upon a Monopoly board. A paperbound collection of Ernest Hemingway's newspaper columns is hidden behind an oft-used bicycle. Nearby, a wall can barely be discerned beneath a thick blanket of framed posters from various Bradbury stage and film productions.

In the center of the maelstrom is Bradbury, a smiling, silver-haired figure revered around the world as a master SF writer, poet, screenplay author, lecturer and philosopher. His fiction is studied and dissected in colleges and high schools throughout the country. His campus tours draw standing room only crowds of eager knowledge-seekers, and his poetry is scrutinized by fantasy afi-

approach my craft with enthusiasm and respect. If my work sparks serious thought, fine. But I don't write with that in mind. I'm not a serious person, and I don't like serious people. I don't see myself as a philosopher. That's awfully boring. I want to shun that role. My goal is to entertain myself and others. Hopefully, that will prevent me from taking myself too seriously."

Despite Bradbury's humility, he is openly regarded as one of the finest science-fiction writers in the genre's history. Over the years, he has penned such classics as *The Martian Chronicles*, *Something Wicked This Way Comes*, *The Illustrated Man* and *Fahrenheit 451*. He has won the O. Henry Memorial Award, The Benjamin Franklin Award and the Aviation Space Writer's Association Award for the best space ar-

ticle in an American magazine in 1967. Not bad for a science-fiction fan who never had a chance to complete his formal education.

Born in Waukegan, Illinois in 1920, SF fanatic Bradbury moved to Los Angeles at an early age, graduating from L.A. High in 1938. At that time, a college education seemed out of the question for the fledgling writer, so he finished his "education" by taking to the typewriter. Writing in his spare time, he sold newspapers on street corners from 1938 to 1942. Selling his first story in 1941, Bradbury launched a career that would take him to the top of his SF class.

During the 1950s and the 1960s, Bradbury's star shone brightly. A short story, "The Fog Horn," became the basis for the film, *The Beast From 20,000 Fathoms*. A screen treatment penned by Bradbury evolved into the 3D thriller *It Came From Outer Space*. Two novels, *The Illustrated Man* and *Fahrenheit 451*, came into their own as popular films of the sixties. The author found himself elevated to an almost pop-culture hero status.

Then, in the 1970s, he began to retreat from public view. Despite the fact that his literary seclusion was ever-so-slight, it caused quite a few long-time fans to worry. Recently, however, he emerged with his first SF collection in seven years, *Long After Midnight* and has now become involved with an upcoming TV version of his *Martian Chronicles*. During his seven-year "hiatus," it seems that Bradbury was indeed a busy man, working diligently on a host of projects. One of his most rewarding endeavors, he reveals, has been the development of his skills as a poet. A recent volume, *When Robot Men And Robot Mice Run Round In Robot Town*, was greeted with popular acceptance, a fact which pleases the author (an admitted closet couplet-craver).

"I've been writing poetry since I was a child," he smiles, "starting at the age of ten or eleven. I've always wanted to write good poetry. Most of it, for thirty or forty years, was pretty bad. However, I tried to write something every day during that period. I would go to the typewriter and write whatever came into my head. Then, in my late forties, my poetry began to get better. Over the last

seven or eight years, I've written 200 to 300 poems, some of which are excellent, some of which are good, and some of which are bad. I never really planned *Robot Men* as a project. You don't know you're writing a book like this until, finally, you turn around and say to yourself 'Now is the time to put them on display and see if other people like them.' That's how I wrote my first book of poetry and that's how this second book was written."

Bradbury cannot explain his fondness for poetry, commenting, "Why do some people become electricians. Why do other people become actors? The mystery of love is finally genetic. There's a certain part of each of us that responds to certain art forms.

"I've found inspiration for many of my short stories in other people's poetry. In fact, there have been many times when I've taken a single line of poetry and turned it into a short story. Poetry is an old love of mine, one which is central to my life. I wrote poetry in most of my novels and never realized it. When I met Aldous Huxley and Gerald Heard, twenty-seven years ago, they sat down with me and Mr. Heard said, 'You know what you are?' I said 'No, what am I?' 'You're a poet,' he said. I blinked. 'My God, am I?' 'You certainly are. Listen to this . . .' And he read a paragraph to me from *The Martian Chronicles*.

"Well, what a compliment that was, to have these older men telling me what I was. It meant a great deal because I looked up to them to a fantastic degree. It's that sort of encouragement, especially when you're twenty-nine, thirty, thirty-one, and haven't yet received a huge acceptance in the world, that makes you experiment, get braver and believe in yourself. We all need the approval of older people — don't we — before we can come to believe in ourselves."

With two volumes of verse now in print, Bradbury has turned his attention, of late, to another infatuation of his . . . the murder mystery. "I'm working on a murder mystery now. Actually, I've been working on it for the last ten years," he laughs. "I have many loves in my life, one of which is going back into my childhood and recapturing the memories of Sherlock Holmes, Raymond Chandler, Dashiell Hammet, Ross MacDonald and others. I have huge admiration for their abilities as novelists. When I was in my early twenties, I wrote numerous detective stories. Sadly, they weren't very good. But I survived. And I published twenty or twenty-five short stories in various mystery magazines. I've always wanted to write a really good detective novel. If I could write one that was half as good as Chandler or Hammet, I'd be delighted out of my head."

Yet another of Bradbury's successful projects of late has been the launching

of *The Martian Chronicles* play which, at present, is packing in audiences in Los Angeles. "We sold out every night without having to take a single ad," Bradbury beams. "Needless to say, it was most satisfying."

Bradbury can only guess why *Chronicles* has been so successful on stage while other plays by the author have been met with something less than critical enthusiasm. "It's hard to answer. This year, 1978, is the year of science fiction on many levels. The roots go way back. They encompass the history of this country. They go back to Jules Verne. They go back to the scientific revolution. They go back to the Sputnik phenomenon. They go back to the Moon probe, the landing on Mars. We're the beneficiaries of all these miraculous events. If it weren't for these developments, we wouldn't have seen a *2001*. There wouldn't have been a *Star Wars* or a *Close Encounters Of The Third Kind*. And the *Martian Chronicles* wouldn't have succeeded on stage. All these achievements are the direct result of the technical miracles of the last few years."

With the *Chronicles* a solid stage success, NBC is now attempting to bring the *Martian* Midas touch to television this season in a mini-series format. Richard Matheson has been assigned the script and, thus far, all systems are go, albeit slow moving. "I suspect it's going to cost somewhere between \$6 and \$10 million," marvels the author. "I'm not any good at those sort of figures. I don't know what we'll ultimately need to do the project, although I think it will probably be close to \$10 million."

Yet another Bradbury film project in the works is a motion picture version of *Something Wicked This Way Comes*. Unfortunately for film buffs, *Something Wicked* is taking its time in coming. "I finished the actual screenplay over a year ago," Bradbury states. "It's a beautiful job, even if I say so myself. The problem is we have no money and no director. I don't know when the film is going to be made. Our director, Jack Clayton, quit over a year ago, returning to London. All kinds of things took place behind-the-scenes which I don't pretend to understand or wish to comment on. I have no reliable information as to why Clayton and the producers of the film disagreed among themselves. It's now a problem of going out into the world and finding a new director. I still hope, though, that Clayton will come back on the job. That would be perfect."

While waiting for things to jell on his various film projects, Bradbury has embarked on numerous other prestige endeavors, one of the most talked about being his involvement with Walt Disney's futuristic city, EPCOT — the Experimental Prototype Community of Tomorrow. "My involvement with the project takes place at the 'Disney

Renaissance Robot Factory,'" Bradbury laughs. "At least, that's what I call it. It's in Glendale, California, separate from the studios. It's a large complex of buildings with no name on the front door. You could go right by the place and never see it. I think Disney planned it that way so no one would bother anybody. It's on a little side street and has somewhere between 600 and 700 employees. Inside this 'idea factory' are artists, technicians, astronauts, sculptors, photographers, urban planners, experts on miniatures, cartoonists — idea people on seventeen or eighteen different levels. They're people who have the ability to conceptualize and then build what they've envisioned. My job is to sit in on these sessions and help them to try various ideas on for size."

"They brought me in to help invent new concepts for rides that might go into *Disney World* or the *City Of The Future* or into single structures within EPCOT.

"I'm presently designing an idea ride through history, a project which I find terribly exciting. Actually, it's a museum in time; a building that will house the past, present and future. Hopefully, it will help us to teach ourselves to believe in our past so we can better look at our present and plan for the future. If I can do this correctly, if I can excite you as to our place as human beings on this strange planet, if I can dream about our future in technological and artistic terms, then you'll leave the building wanting to live forever. That's a pretty tall order isn't it? But, damn it, we're going to try."

When not looking into the future these days, the multi-faceted Bradbury is looking into the past. He has recently begun a two-hour television script for a film detailing the history of the Smithsonian Institution. "How exciting it is to be connected with this fantastic institution," he marvels, "to have the opportunity to pay homage to the ideas of the American past. It all fits, doesn't it, when you look at my personal history? For example, I've always loved the history of flight, which is such a vital part of the Smithsonian's heritage. In fact, my second cousin, A.J. Edwards, was one of the men who built the *Spirit of St. Louis*, in 1927. Here I am, very late in time, being asked to work with the Smithsonian people on this fantastic project, one which will enable me to go back and see the original *Spirit of St. Louis* in Washington, D.C."

With all this activity whirling about in Bradbury's life, it's surprising that the author finds time to return to his first love . . . science fiction. But, time and time again, he does, although he prefers not to be labeled a straight "science-fiction" writer. "I'm an idea writer," he explains. "Everything of mine is permeated with my love of ideas — both big and small. It doesn't matter what it is as long as it grabs me and holds me,

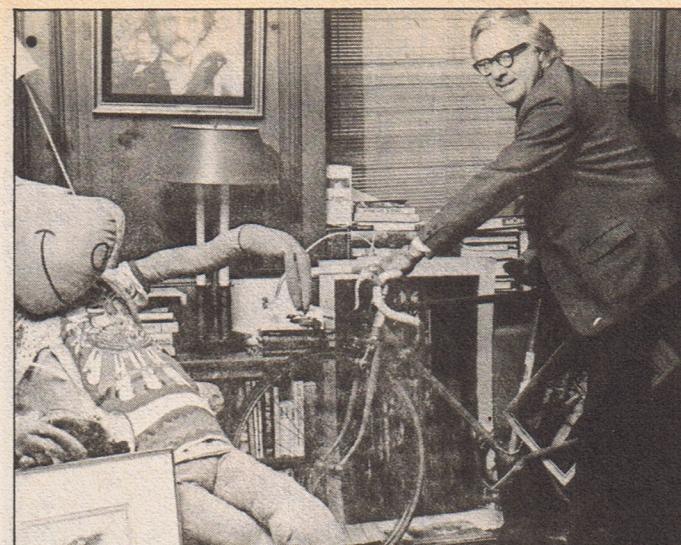
fascinates me. And then I'll run out and do something about it."

Despite the fact that he has dwelled in the SF genre for over thirty years, Bradbury still finds it an exciting realm to work in. "In fact, it's more exciting today," he says. "A lot of my poetry is science-fiction poetry. My writing this play, *The Martian Chronicles*, has been tremendously challenging. I'm older now, my enthusiasm is high and I'm trying to find new ways of understanding my younger self. And so, my new plays, my science-fiction plays, represent a new level of consciousness."

Although Bradbury is quite pleased with the quality of SF these days, he is remarkably candid about its pitfalls. "Nothing ever gets better," he muses. "There's always a small handful of talented writers who do good work in any particular age, and all the rest are merely adequate. That's true for science fiction as well. Thirty-five years ago, we had a dozen or so really fine SF writers. There were another twenty to thirty who were good. And there were twenty to thirty who were fair. That's still the case today. There are a lot of good people working today, many of whom were working twenty or thirty years ago — people like Robert Heinlein, Arthur Clarke, Theodore Sturgeon. Moreover, there are many new writers coming into the field with a great love for it. I don't think though that there's been any huge change in quality. It's pretty much the same situation with about twelve to fourteen people doing the bulk of the good writing."

Bradbury does, however, see SF progressing in terms of subject matter. "I suspect we'll move more into philosophy, more into theology," he theorizes. "The further we go into space, the more we're going to be awed and terrified by our lonely position in the universe. That means we'll need to do a lot of thinking about the future, which is what I'm trying to do with my poetry. I want to help us to explain ourselves to ourselves. That has always been a constant in science fiction, but I think it will really dominate our thinking in the next forty years."

Bradbury believes that SF will gain in popularity in years to come as more and more readers realize that, in essence, the qualities making for good science fiction are identical to those needed for good fiction in general. "The same attributes that go into fiction writing in any field are equally important for science fiction," he explains. "Namely: observation and truth. For example, if you read the book *The Virginian*, you can't help but say to yourself 'My God, what a good writer this man is.' In the area of portraying middle class life and customs, Ring Lardner was a genius at characterization. In the field of humor read Robert Benchley or Stephen Leacock. You'll laugh your head off



Author Bradbury demonstrates that you don't have to leave home to travel far in the world of SF-fantasy.



Above: in the midst of his chaotic office, Ray Bradbury creates organized excursions into literature. Of his current interest in poetry he says: "I want to help us to explain ourselves to ourselves."

Left: "I'm an idea writer. Everything of mine is permeated with my love of ideas—both big and small... I suppose that's why my stories are popular. You can take a short story idea of mine and write a variation on it. Write your own version of the story."



Ray Bradbury welcomes author Jeff Elliot into his home as Mickey Mouse smiles approvingly off to the side. In the background is just part of Bradbury's library.



The magic of Ray Bradbury will be seen soon on TV via *The Martian Chronicles* mini-series, a production currently in the planning stages. The stage version of the classic SF book is a possible college campus tour attraction for this fall.

because it's *true*. It's a fantastic stretching of *reality*, so designed that we can swallow it and let out a roar. SF works the same way. *The Martian Chronicles* is a metaphor for a way of seeing our universe, of seeing our planet and the planets around us. It works because it rings a bell of truth. It looks like fantasy but it isn't. It will only work if you, the reader, feel that the writer has an honest way of looking at the world.

Although Bradbury stresses that there is no secret ingredient for writing SF, he does acknowledge that he has one of his own. "I suppose it's this whole thing of ideas," he reemphasizes. "You can take a short story idea of mine and write a variation on it. Let me give you an example. Take 'There Will Come Soft Rains,' which is the story of a mechanized house of the future, one that goes on living and breathing after all the inhabitants have gone away. You can give that idea to a bunch of kids in elementary school or junior high and say 'Write your own version of the story. What would your house be like? How would you build it? What would you put in it?' Well, that's a fun idea, isn't it? I suppose that's why my stories are popular, why I can get people to come to my lectures. I'll shift in and out of these ideas. I'll apply them to poetry one moment, then I'll do a play about them the next, then a short story, then an essay, a screenplay and so on. I'm all over the place. I never stop moving. I suppose there's an attraction to that."

Surrounded by his posters, paintings, books, bikes and random pieces of bric-a-brac, Bradbury modestly surveys his career. In essence, he has touched all literary bases, more often than not with great success. However, he is not embarrassed to point out that he has taken his share of critical lumps for some of his more iconoclastic excursions into different modes of SF.

But that, he surmises, comes with the typewriter. "You can't afford to think about that sort of thing," he philosophizes. "Just as you can't pay attention to the praise. It's ridiculous to go around reading reviews. It's too late to do any good. The work is done by the time they appear. The people who praise you can't help you with your next project and the people who criticize you can't deter you. So, what's the use? You can't pay attention to either. Instead, you have to get on with your work!"

Allowing the discussion to trickle to a halt, the author saunters out of his office, leaving Bullwinkle, Poe and Hemingway behind. Within seconds, Bradbury is out of the house and ambling down the street on a path leading, no doubt, to yet another artistic triumph. A sudden gust of wind shakes the trees. A car squeals around a turn before barreling down the street. Yet the silver-haired writer never falters in his step.

Ray Bradbury never stops moving. □

PBS, the public broadcasting network responsible for bringing *Nova*, *The Prisoner* and *Dr. Who* to eager audiences across the country is entering the "speculative fiction" world in a big way this fall with a proposed anthology series dealing with the best of science fiction. The Television Laboratory at WNET/THIRTEEN, New York City, has received a grant of \$740,000 from the Corporation for Public Broadcasting to produce a pilot for the series. The pilot, a two-part dramatization of Ursula K. LeGuin's novel, *The Lathe Of Heaven*, will begin production this fall in Portland, Oregon, where the story takes place.

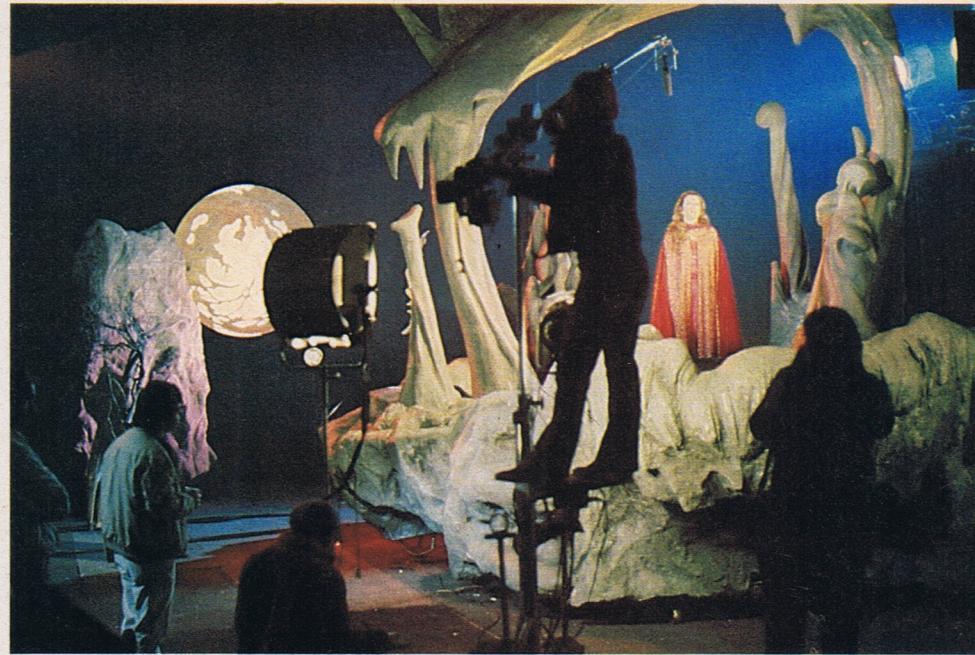
Although no director or cast has been set yet, the New York station has revealed that Ms. LeGuin herself will have an influential hand in the finished script. Set at the end of the twentieth century, *The Lathe Of Heaven* concerns the adventures of George Orr, a fellow whose dreams literally come true. In a world where the polar ice caps have melted from pollution and most of the population suffers from chronic malnutrition, Orr tries to stop his terrifyingly effective dreams, visions that completely change the fabric of reality.

He begins to see a psychiatrist. But, rather than heal, the doctor tries to exploit his power, forcing him to dream up new realities free from war, "disease and overpopulation. There are awful consequences to these altruistic endeavors, however, and Orr must dream and dream again, forever seeking Utopia.

The show's producer, David Loxton, director of the Television Laboratory, is quite enthusiastic about the proposed TV show dealing exclusively with the classics of science fiction. "It is, undoubtedly, one of the most exciting and challenging areas of contemporary literature, with some of the most creative writers, thinkers, prophets and dreamers. It is the fiction of the future, an area of tremendous growth, energy and development."

**CLONE MASTER:** NBC has dubbed its two-hour telefilm about the fine art of cloning *Clone Master* and plans to unveil it this fall. Starring Art Hindle and Robin Douglas, the film is being prepared by Paramount TV. Executive producer Mel Ferber says the story is loosely based on the cloning success first performed on a carrot at the University of Michigan and later on a frog by a researcher in England. Don Medford is the director of the funfest, John D.F. Black is tagged as producer-writer.

**DR. STRANGE:** Hopes are high that the upcoming *Dr. Strange* telefilm (adapted from the comic book about the Greenwich Village-based sorcerer) will be a ratings winner this fall on CBS. Watch



The Universal studio crew focuses on Jessica Walter playing sorceress Morgan Le Fay in the "inter-dimensional" battle sequence of *Dr. Strange*.



Peter Hooten, last seen in Delaurenti's *Orca*, now serves as television's master of the mystic arts, *Dr. Strange*, produced by Phil DeGuere.

for a potential series.

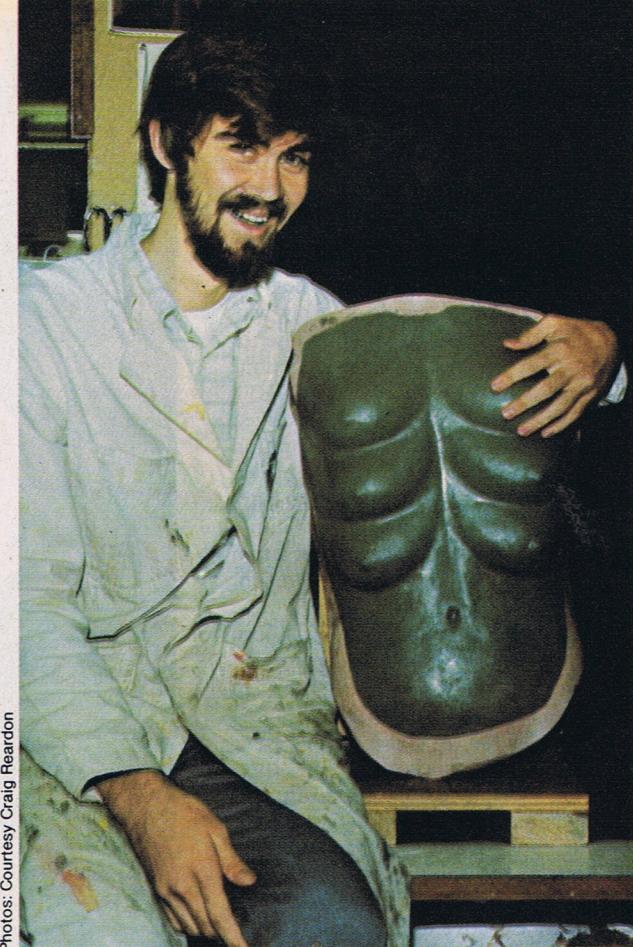
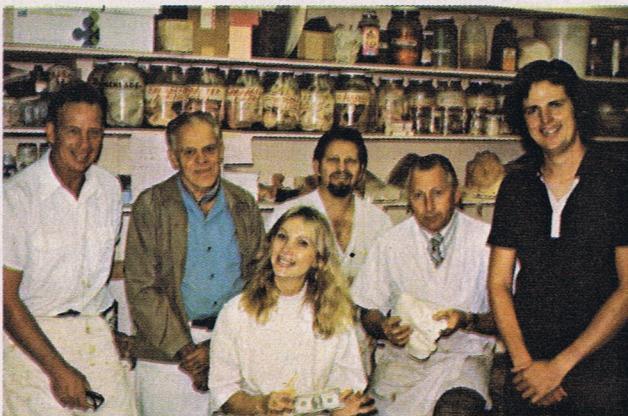
**HOW ABOUT:** Don Herbert, a Peabody Award winner best remembered for his more than 600 *Mr. Wizard* science shows aired during the fifties and sixties will return to television this fall in a series of *Wizard* shorts syndicated to local stations throughout the country. Herbert, who geared his original science series to a youth audience, plans on taking his world of wonder to a slightly older crowd this time out, under the title of *How About...*

The first wave of *How About* spots will be made in 90-second, two-minute and four-minute lengths and will deal with such subjects as radar, sharks, white blood cells, bats, micro-organisms, oil spills, meteorites, calories, floods and signals from space. The initial series is budgeted at \$500,000.

**THE TIME MACHINE:** Wallace Bennett has been signed to adapt H.G. Wells' *The Time Machine* into a two-hour telefilm for NBC for 1979-80 showing.

photos: © Universal

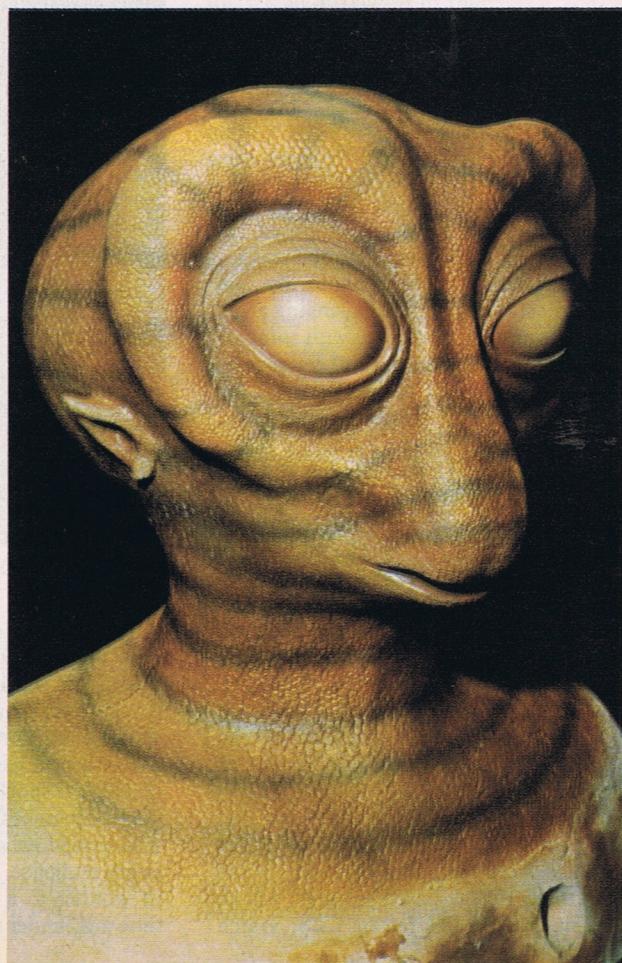
# ALIENS FOR HIRE

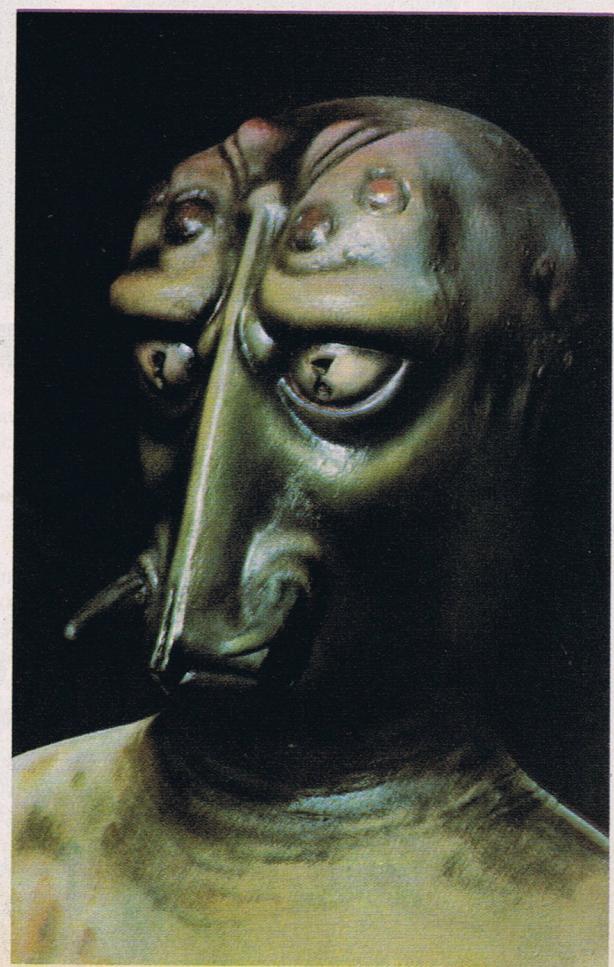
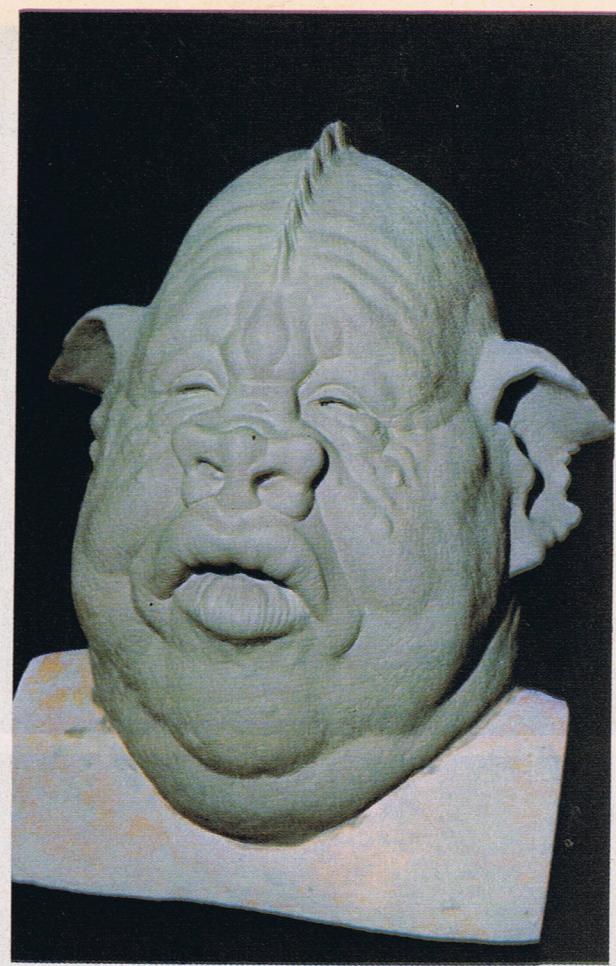
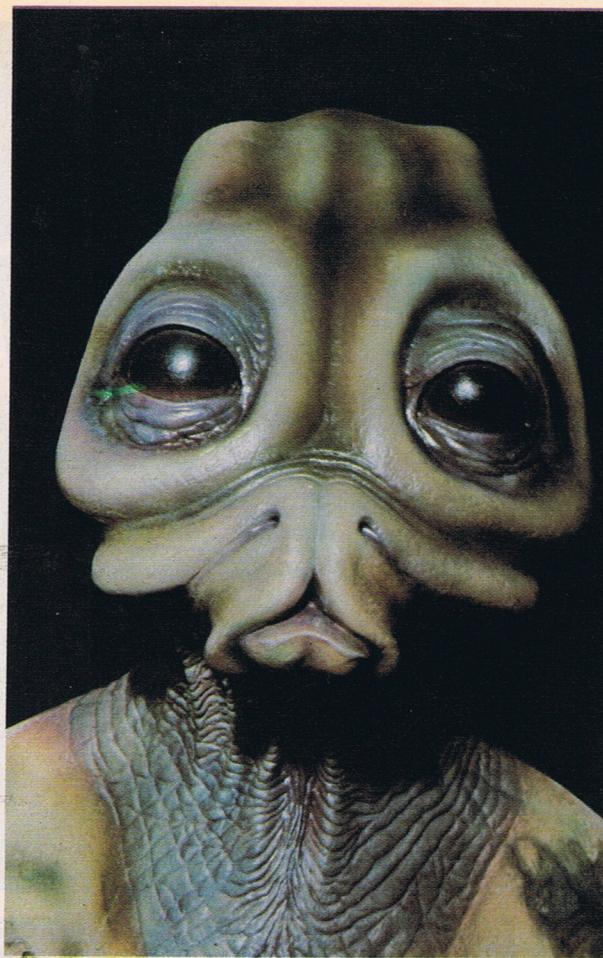


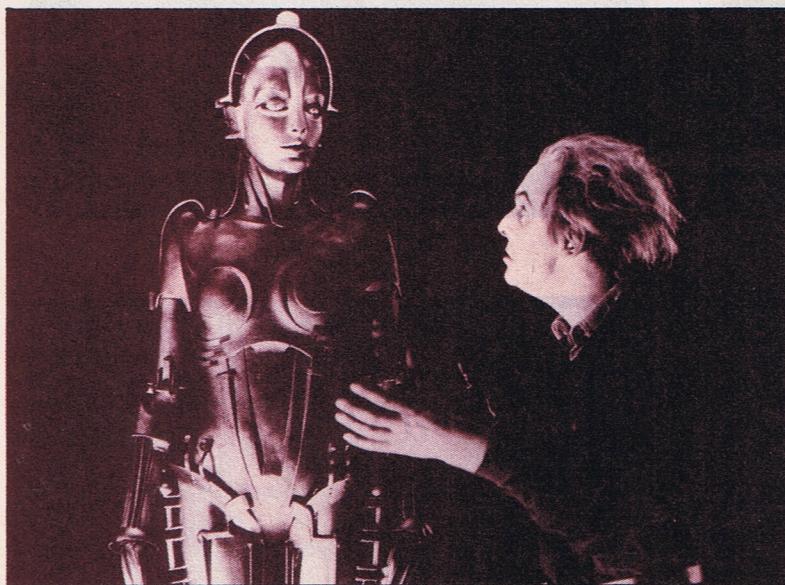
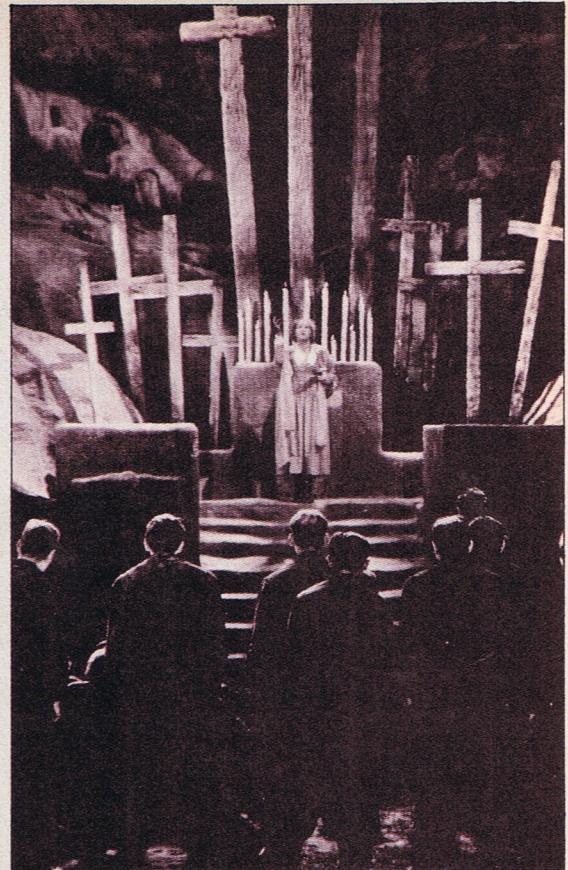
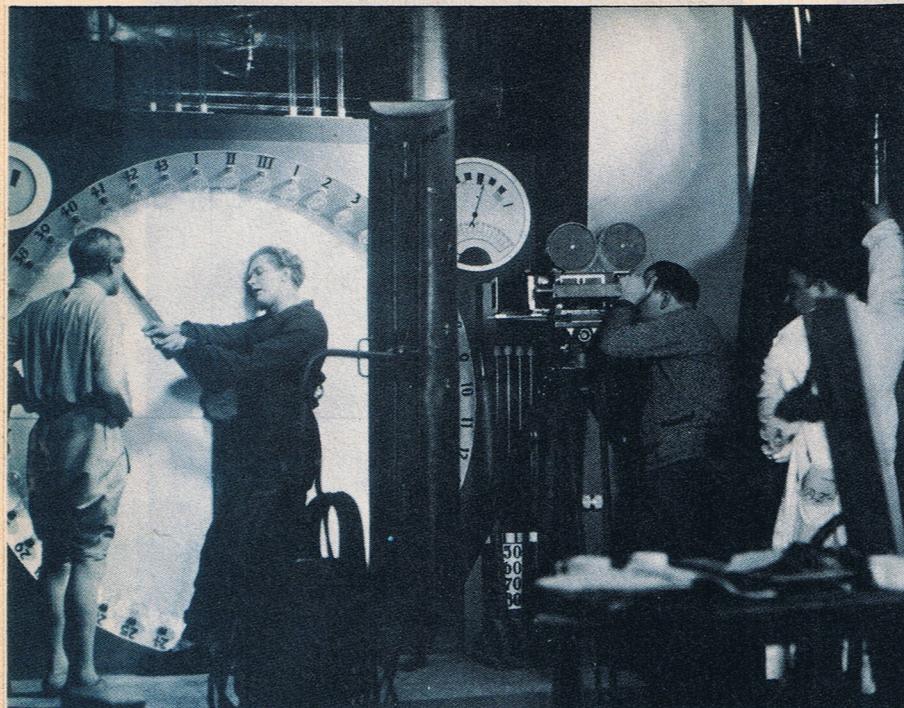
Photos: Courtesy Craig Reardon

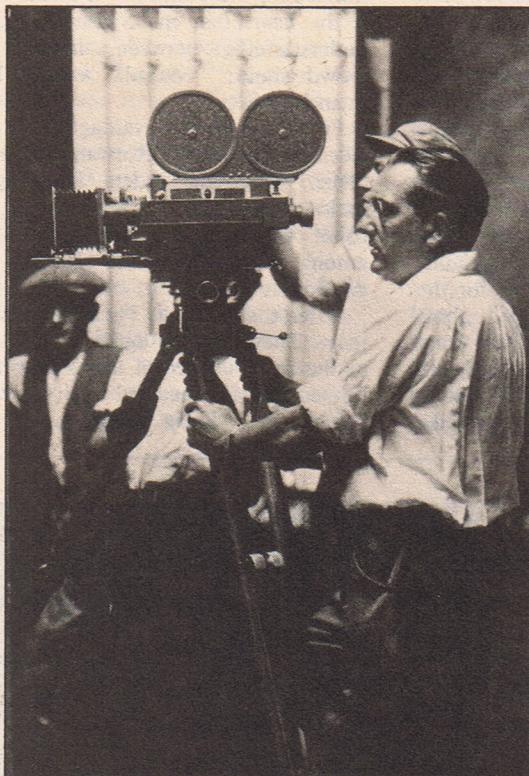
In the summer of 1977 Craig Reardon was hired by Universal to produce some ideas for the embryonic *Battlestar Galactica* (at that time the working title was *Star Worlds*). He spent the first week sketching aliens. "I drew fanciful things, insectoid things, large fearful monsters that looked like they might be capable of intelligence or conversation." Above: Some of the people who are part of the very talented team of artists in the Universal makeup dept. From left to right are: Gunnar Ferdinandsen (one of the best mold-makers in the business), Chris Mueller (a consummate sculptor and highly respected in the industry—recall the beautifully sculpted detail on Capt. Nemo's pipe organ aboard the Disney *Nautilus*) Rosalind Mercier, Dan Angier, Werner Keppler, and David Ayres. Craig Reardon is pictured above right with the torso for a multi-breasted cocktail waitress proposed for the "Casino" sequence. The golden-helmeted figure on the facing page was sculpted by Chris Mueller. As most of the figures on this page were designed rather early, some even before a script was available, it is probable that only one or two will ever make it onto the screen. However, these designs should give us a good idea as to the range of visual delights that will be in store this fall.

David Ayres has also been involved in sculpting heads for TV's *Buck Rogers*. There will be a number of alien creations making their debut in *Battlestar Galactica*. Some wonderfully insectoid creatures known as Ovions are the creation of Jon Berg, Phil Tippett and Laine Liska. Rick Baker has designed a marvelous trio of entertainers whose very special physical attributes lend unique qualities to their act. And even Carlo Rambaldi has gotten into the act with the dark and mysterious Imperious Leader. FUTURE will be talking with some of these talented creators in upcoming issues.









# METROPOLIS

## Out of the Past, a Look At the Future

*Over fifty years ago, director Fritz Lang attempted to portray the problems of a city of the year 2000. Despite a ballooning budget, stultifying scripting and the censor's scissors, Lang managed to create the ultimate science-fiction cityscape . . . Metropolis!*

By SCOT HOLTON, BOB SKOTAK and LEM PITKIN

In March of 1925, German motion picture director Fritz Lang began work on the most revered disaster in the history of science-fiction filmdom . . . *Metropolis*.

*Metropolis* . . . the city of the year 2,000.

*Metropolis* . . . a megalopolis destined to become a milestone in science-fiction cinema.

*Metropolis* . . . a two-million-dollar epic that proved to be a financial debacle on both sides of the Atlantic.

### Groundwork Begins

The saga of *Metropolis* began quite unspectacularly in 1924. Visionary filmmaker Lang, basking in the success of *Siegfried And The Dragon*, visited America to study the burgeoning U.S. film world. While sailing into New York harbor, he found himself mesmerized by the look of the ultra-modern city. "We had to stay at the harbor onboard ship for a whole night, as we still were 'enemy aliens,'" he recalled years later. "There I saw, across from the ship, streets lit as if in full daylight by neon lights and topping them oversized luminous advertisements—moving, turning, flashing on

and off, spiraling . . . something that was completely new and different for a European in those days. This impression gave me the first thought . . . for a town of the future."<sup>1</sup>

Determined to create an epic film allegory in such a futuristic setting, he approached his wife, Thea von Harbou, with the idea. She promptly wrote a novel on the subject which, together, they turned into a screenplay.

Deeply effected by the post World War I atmosphere of Germany, Lang attempted to fit every philosophical trend of the times into his scenario. Following the financial ruin caused by the war, Germany quickly became not only an economically stable country but a visionary nation as well. Future-thought abounded and age-old concepts concerning the master race were mixed freely with hardware-oriented science and an expansive strain of economics.

In the back of his mind, Lang saw both the beauty and the danger of such a potential mixture. Material advancement unchecked, he reasoned, carried the seeds of its own destruction. Spiritual progress must also be taken into account. Where would the *heart* of mankind fit into a technocratic society?

The director experimented both with

this theme and the popular concept of dualism. Man had two sides: the mental and the physical. In the year 2,000, this schizoid nature leads to a split between the rulers (mental) and the workers (physical). Taking this theme even further and placing it into a machine-oriented motif, Lang portrayed his working class as being the living embodiment of machines: regimented drones, trapped in a routine existence.

Although the finished screenplay was a philosophical smorgasbord from the outset, Lang's bosses at UFA (Universum Film A.G.) were more than delighted to give the cinematic wunderkind carte blanche on this project. Lang had produced great successes in the past. Surely *Metropolis* would be his greatest screen triumph.

Filming began in the spring of 1925 and dragged on until October of 1926. Costing over 40 million German marks (two million American dollars), *Metropolis* used over two million feet of film, boasted a shooting schedule of three hundred and ten days and sixty nights and employed over 36,000 men, women and children as extras.

It was the biggest silent SF film ever conceived.

And it drove UFA into bankruptcy.

### Cityscape

*Metropolis*, the city of the future, is an architect's dream-come-true. Layer after layer of multi-level structures

Top of page: Fritz Lang on the set. Opposite page, clockwise from upper left: Cinematographer Karl Freund sets up a shot, Maria preaching, the creation of the robot Maria, the massive flooded set.

<sup>1</sup>Johnson, William: *Focus On The SF Film*, Prentice-Hall.

stretch as far as the eye can see. Across the horizon, small aircraft and helicopters zoom over the city's floating highways which span from building to building. (The tabletop models of the cityscape scene alone covered nearly an entire stage at UFA.)

In the midst of this futuristic splendor trudge the workers, drably garbed in prison-like attire. Their dimly lit quarters are located far below the city's surface. Day after day they toil in their machine shops, keeping the city alive. Like somnambulistic automatons, they descend into Metropolis' hellish core every morning, lowered down in freight elevators. At the end of the day, the lifts bring them back to their families, with the prospect of endless tomorrows haunting their sleep.

Meanwhile, in the aboveground city, the sons and daughters of the rich frolic amid the lush metropolitan gardens. One of these young elitists is Freder (Gustave Frolich), the young and sensitive son of the Master Industrialist of Metropolis John Frederson (Alfred Abel). Relaxing in his garden one day, Freder spots a beautiful blonde girl leading a small group of ragged children into the area proclaiming, "These are your brothers." She is quickly ousted by the family servants. Both the girl's beauty and statement disturbs Freder. He has given little thought to the sufferings of the wretched workers below. He suddenly feels driven to investigate their plight.

He makes his way down to the realm of the workers: a murky region of caverns lined with infinite rows of menacing machinery — pistons, furnaces and dynamos stretching as far as the eye can see. The massive control sector itself is a mountain of complex machinery swarming with an army of downtrodden workers. As Freder watches, the workers regulate the control mechanism's levers. One exhausted man collapses, unable to maintain the frantic pace. Pressure builds up inside the intended unit and the city's monstrous boiler bursts. A wave of scalding steam lashes out at the workers, sending dozens of helpless men plunging from their scaffolds. Freder himself is knocked down by the blast. Sprawled on the ground, he has a momentary hallucination where the machine, surrounded by its blazing pillars of steam, is transformed into Moloch, the ancient god of the Ammonites. Freder gapes in horror as lines of workers seemingly throw themselves into the hungry god's jaws.

Regaining his wits, Freder rushes back to the surface and into his father's office. The workers are his brothers, he insists. His father, less than impressed, berates him for journeying to the lower level. "It was their hands which built this city of ours," Freder announces. "But where are these hands in your scheme?" John stares at his son. "In their place . . . in the depths."

Freder returns to the lower level and, after watching yet another worker collapse on the lever line, takes the stricken man's place. He becomes one of the working class.

John also goes below street-level, but on a less altruistic mission. Making his way through the somber labyrinths, he visits the home of permanently harried scientist Rotwang . . . an inventor boasting both a metal hand and a dwarf assistant. Before the elder Frederson's eyes, Rotwang brings a female robot to life. The figure stands and walks towards its creator. Rotwang proclaims that soon there will be no need for the poor working class. His race of robots will be able to handle all the sub-strata work . . . and much more efficiently. In another day, he brags, he will be able to create a robot that will look exactly like

The girl tells the story of the Tower of Babel, comparing it to the story of Metropolis. "Between the brain that plans," she instructs, "and the hands that build, there must be a mediator. It is the heart that must bring about an understanding between them." The crowd shouts "Maria!" as she leads them in prayer.

From a concealed vantage point, the elder Frederson and Rotwang watch the scene. Frederson orders Rotwang to make a robot in Maria's likeness. The robot will sow the seeds of discord among the workers and destroy their confidence in her.

After the meeting, Freder and Maria meet. They kiss and agree to meet later at the town Cathedral. As Maria heads home she is snatched by Rotwang. Later, after being stood up at the

## METROPOLIS CAST AND CREDITS

METROPOLIS: A UFA release. 1927. Black and white. Directed by Fritz Lang. Written by Fritz Lang and Thea von Harbou. Photographed by Karl Fruend and Gunther Rittau. Special Effects: Eugene Schufftan. Supervising Art Director: Edgar Ullmer. Art Directors: Otto Hunte, Erich Kettelhut and Karl Vollbrecht. Sculptures: Walter Schultze-Middendorf. Music: Gottfried Huppertz.

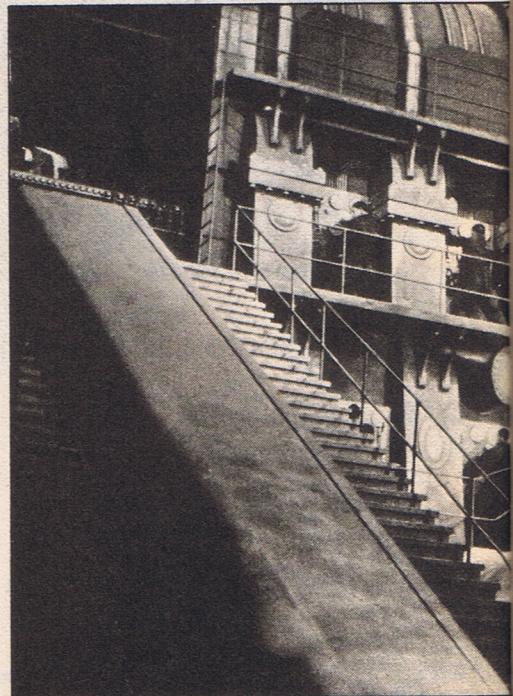
Maria . . . . . **Brigitte Helm**  
John Frederson . . . . . **Alfred Abel**  
Freder Frederson . . . . . **Gustav Frolich**  
Rotwang . . . . . **Rudolph Klein-Rogge**  
Foreman . . . . . **Heinrich George**  
Grot . . . . . **Fritz Rasp**

Also featuring: Theodor Loos, Erwin Binswanger, Olaf Storm, Hans Leo Reich, Heinrich Goetho, Ellen Frey, Lis Gray, Margarete Lanner, Max Dietze, Georg John.

a human being!

Frederson confides in Rotwang that his spies have been discovering maps hidden in the workers' pockets . . . diagrams of the lowest level of the city, the ancient catacombs. He wonders aloud what the workers are doing with the maps.

Back in the boiler room, Freder dons a worker's uniform and cap. At the end of his shift, Freder's similarly garbed replacement informs him, "She has called another meeting." Freder dumbly follows a mob of men through a stone passageway leading to the lower depths. They enter a chamber. A sea of laborers fills the room. In the front of the auditorium, standing on an altar, is the beautiful blonde girl (Brigitte Helm) seen earlier in Freder's garden.



The Schufftan Process details this scene.

church, Freder becomes alarmed. Running past the grotesque Gothic statues of the 7 Deadly Sins, he begins to search for his purloined paramour. Freder makes his way to Rotwang's house. Hearing a woman's scream, he bursts inside and finds Maria's scarf. At that very moment, down in Rotwang's laboratory, the scientist transforms the robot's shiny surface into a duplicate of Maria's soft skin. Process completed, Rotwang sends the humanoid double to Frederson's office. Freder, unable to find Maria, departs.

Frederson approves of Rotwang's mechanical Ms. and sends her off to undo Maria's pacifist teachings in the labor camp below. Freder, pining for the real Maria, collapses into a state of delirium, a condition lasting days. In his fever

dreams, he sees Maria dancing suggestively before a gathering of some of Metropolis' most important capitalists. He then envisions the figure of Death leading the 7 Deadly Sins in a dance from the Cathedral. While he lies in this weakened state, the robot-Maria incites the workers below. "Destroy the machines," she screeches. "Destroy the machines."

A dizzy Freder makes his way down to the lower level just as the workers revolt. The great dynamo explodes showering the caverns with great bolts of lightning.

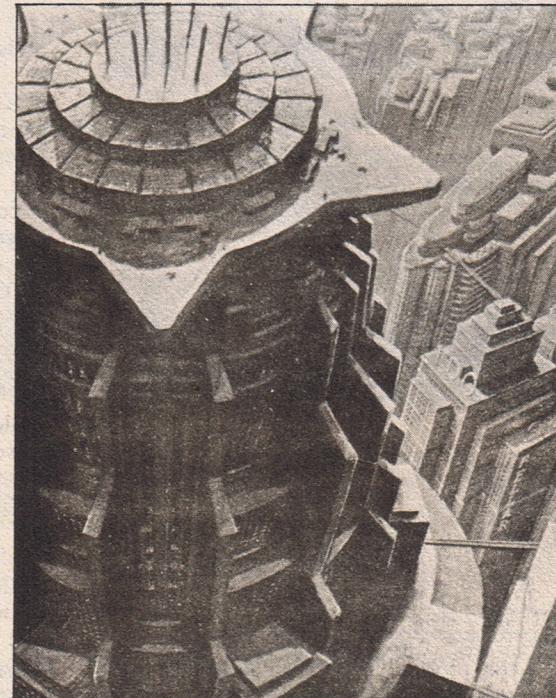
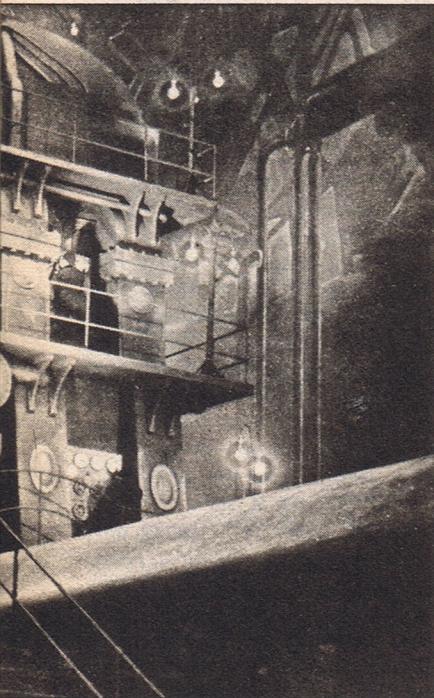
In Rotwang's home, the real Maria escapes. She flees to the great square of the deserted labor city. Suddenly a torrent of water explodes from beneath the pavement. Great waves burst through the sidewalks and the ceilings. Because Metropolis' machinery is being

A mob of citizens make their way up to the surface of the city and seize the robot-Maria. She is tied to a post in the middle of the Cathedral square and set afire. Freder and the real Maria choose this moment to lead the children to the safety of Metropolis. They become separated in the lynch mob and the flesh-and-bone Maria seeks shelter in the empty church. Rotwang discovers her and attempts to strangle her with his metal hand. A neat trick. She escapes and Rotwang begins chasing her throughout the building.

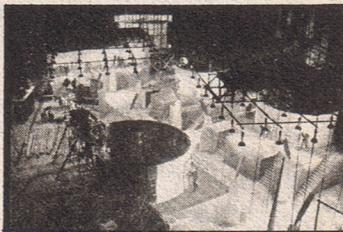
Outside, Freder spots the burning girl and, thinking the victim to be the *real* Maria, breaks down. As he gazes at his flame in flames, the hand-made maiden assumes its real, metallic shape. Freder hears a decidedly human scream arising from the confines of the Cathedral and

ed "the costliest and most ambitious picture ever screened in Europe," premiered on January 10, 1927 at the UFA Palace in Berlin. Although crowds initially flocked to see the film, it was soon evident that UFA would never recoup its investment. In short, the film proved to be a dud. Movie audiences were mesmerized by the fantastic special effects but found the simplistic plot boring.

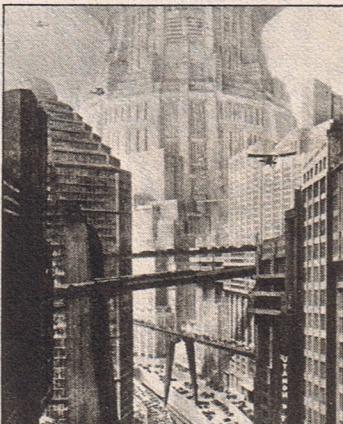
Lang himself stated that he wasn't overly enthused with the finished production, agreeing with the populace concerning its simple-minded philosophy. His opinion, however, has mellowed over the years. "I didn't like *Metropolis* after I finished it," he stated recently. "Because I didn't think in those days a social question could be solved with something as simple as the line: 'The



The central core of the Metropolis complex.



Underground machine room set.



Master shot of the cityscape.

destroyed, all order has ceased. The workers' homes will be destroyed in the resulting cataclysm. Maria leads a group of stranded children to the elevated center of the square. She begins striking an alarm gong in order to alert the unsuspecting laborers of this impending doom.

Freder hears the noise and rushes to the square, finding Maria and the children safe but soggy. Frederson, in his office high above, hears the sounds of the underground collapsing. "Where is my son?" he suddenly cries. "Tomorrow, thousands will ask that question," replies his servant, Slim.

In the ruined powerhouse below, a foreman leads the now-repentant workers in a hunt for (robot) Maria. "It's the girl who led you to this, kill her!"

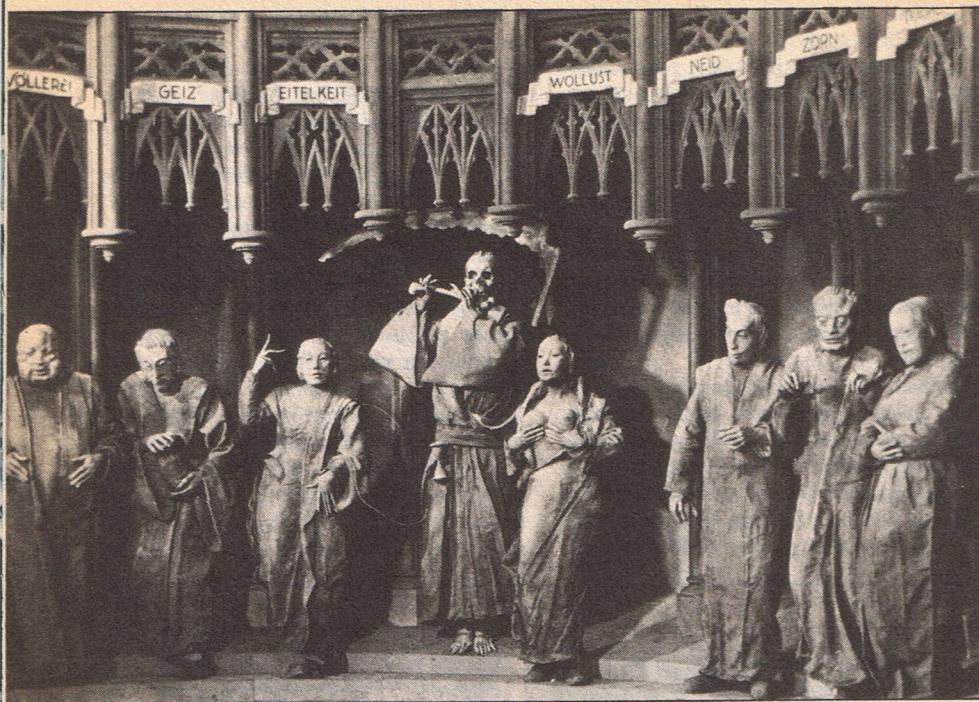
rushes into the building where Rotwang is still giving chase. Freder attacks the scientist. The two struggle on the church roof and Rotwang falls to his death.

There is a massive confrontation in the square. Told of Rotwang's robotics, the workers also learn that Freder is not only John Frederson's son but a hero as well, having saved their children. Frederson appears on the scene and Maria and Freder approach him. "There can be no understanding between the hand and the brain unless the heart acts as mediator," Maria stresses. Hesitantly, Frederson and the leader of the workers reach out and shake hands. Freder and Maria embrace. From this point onward, EVERYone will work together rebuilding Metropolis.

The film *The New York Times* dubb-

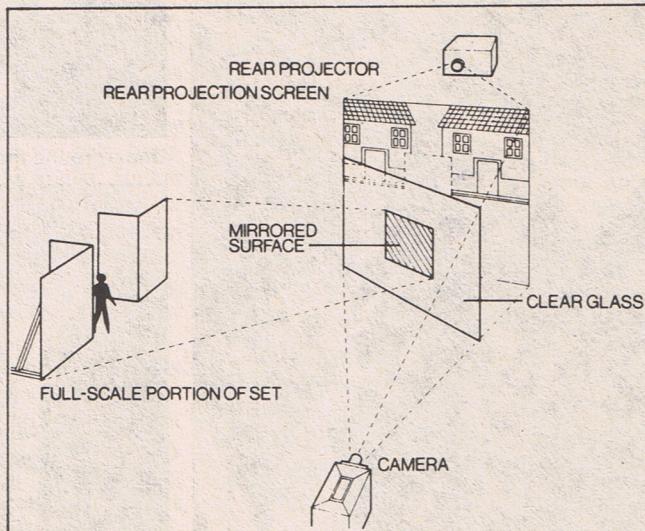
mediator between brain (capital) and hand (working class) must be the heart.' Yet, today, when you speak with young people about what they miss in the computer-guided establishment, the answer is always; 'the heart.' So, probably the scenarist, Mrs. Thea von Harbou, had foresight and, therefore, was right and I was wrong."

American film critics, however, did not share Mrs. von Harbou's romance with foresight. Commenting on the film's stateside appearance in 1927, *The New York Telegram* wrote: "Before the picture is running very long, one is inclined to laugh at its plain absurdities, its open face scheme of story, and the merciless persecution of poor Mary (Maria). Mary is probably the most chased girl of the screen. They chase her everywhere,



Above: the sculptures of the Seven Deadly Sins by Walter Schultze-Middendorf. They are later brought to life in a dream sequence.

A diagram illustrating the Schuftan process. The early special effect technique relied on mirrors to achieve the finished result.



every minute, up stairs, through alleys, over roofs and whatnot."

The March 16 edition of *Variety* of that year didn't bother to criticize the plot, opting instead on the robot Maria's seductive dance. "Some sex stuff here and there," the reviewer drooled, "and a cooch dancer! Yes sir, a cooch dancer. In the re-invigorated mechanical figure, and a pretty good coocher too, but not so thick around the hips as German coochers generally are. But then, you must remember that this young lady was made to order."

Adding to the general confusion regarding *Metropolis*' somewhat disjointed storyline in America was the fact that, for U.S. distribution, *seven* of the film's seventeen reels were cut from the final release. While Fritz Lang occupied himself with his European critics, Channing Pollock, Julian Johnson and Edward Adams busied themselves with the carving of the original German version, nearly erasing any traces of continuity in

the process. Characters disappear with marked regularity as a result. The elder Frederson is seen illogically inciting the workers to a point of revolt, although such a revolution insures the destruction of his beloved city. Rotwang, when not acting demented, suddenly lapses into a kindly old gentleman who almost worships his captive Maria.

As it turns out, due to the cutting, American film-goers never found anything out about the key character Hel, a beautiful woman who dies long before the opening scene of the movie. Loved by Rotwang, Hel marries John Frederson, dying while giving birth to Freder. Understandably upset, Rotwang blames Frederson for the accident, nurturing a deep hatred for the man. When Frederson later orders Rotwang to kidnap Maria, the scientist plots to allow the girl to escape, thus revealing to the populace both the robot-Maria's true identity and Frederson's base, evil nature.

In the German version of the film, Frederson clubs Rotwang senseless before the plot can be carried out. When the scientist awakes, he assumes he is dead and goes searching for his lost love, Hel. Mistaking Maria for his old flame, he chases her through the cathedral. To this day, the original seventeen-reeler has never been viewed in America. In fact, the only surviving print of *Metropolis* left in existence is the edited version.

Despite the somewhat haphazard state-side splicing, the film did manage to impress even its severest critics with its special effects. *The Hollywood Reporter* wrote: "Probably there had never been a picture made with so much seemingly trick production stuff . . . *Metropolis* will make the commoners talk, if no more than to say, 'You've got to see this crazy picture.' "

The film's marvelous techniques were all designed and executed by Eugene Schuftan for the Berlin firm of Aktiegesellschaft, and patented by them under the name "Schuftan Process." This process, simply explained, consists of combining live action with reflected images of model work, paintings or rear screen projection images (or vice versa) by means of removing areas of the reflective coating of the mirror. For example, if it was desired to combine a model of a building with the image of a man standing in the doorway, a mirror would be positioned at a 45-degree angle between the model and the camera. Positioned elsewhere on the set would be the man standing at such an angle that his image would be reflected into the doorway area of the building. Then, all the reflective backing on the mirror would be removed to allow the model to read through and surround the reflected image of the man. The result was that, as seen through the camera, the man appeared to be standing in the doorway of the model house. (See accompanying illustration.)

Despite its many plot flaws and philosophical excesses, *Metropolis* somehow weathered the storm, still standing today as a classic of science-fiction cinema. Released during a time when SF was not considered "adult" film fare, it established science fiction as an important cinematic genre. It pioneered the use of realistic miniature effects and inspired SF authors, filmmakers, fans and technicians for years to come. A financial debacle, a critical dud, *Metropolis* refused to die. It offered more than technology to its audiences, more than adventure. *Metropolis* was one of the first science-fiction films to offer its viewers heart.

Today, over fifty years since its initial appearance, the pulse of *Metropolis* is still beating strong.



### Wetbike

By Spirit Marine. Jet-propelled watercycle. Suggested retail price: \$2300.

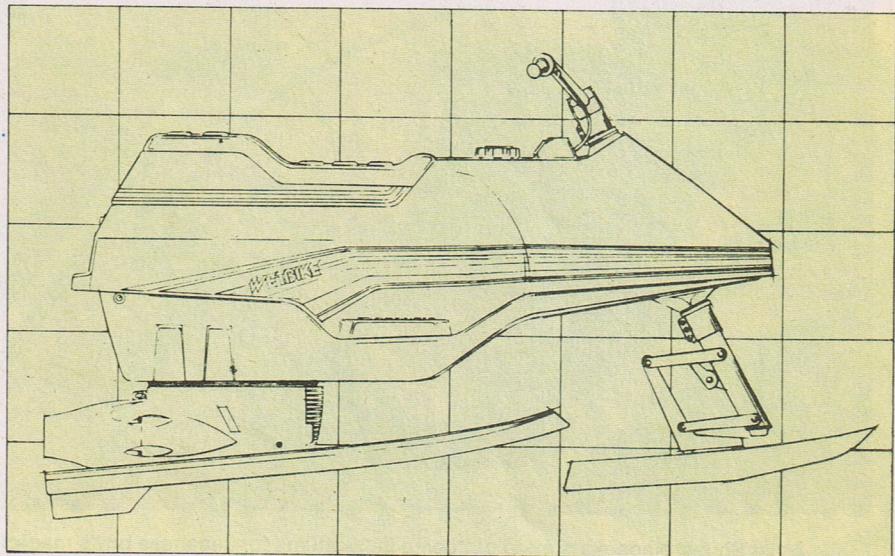
James Bond fans will immediately recognize the Wetbike as one of the specialized vehicles supplied by "Q" in *The Spy Who Loved Me*. Surprisingly, the Wetbike is not a "special effect." You, too, can buzz around the neighborhood lake or bay on your very own watercycle.

The Wetbike hydroplanes across the surface of a body of water like a slalom ski. It is powered by a two-cycle 50 horsepower (723 cc) Suzuki-Spirit engine, which gets the 350 lb. Wetbike up and running at better than 30 mph. The engine has an electric start and meets all non-exempted U.S. Coast Guard regulations.

Early prototypes used conventional propellers. The current production model utilizes a jet pump drive, which the manufacturer says has a good solid thrust at the low end and obviates the danger of an exposed propeller.

The specially designed front and rear skis allow the Wetbike to bank into turns with speed and agility. The riding position is very similar to that of a motorcycle—you lean into turns and forward into jumps. It can safely handle two adults.

"Should you fall," the manufacturer advises, "the engine automatically stops



The Wetbike, Nelson Tyler's invention, made its first appearance as a James Bond gadget in *The Spy Who Loved Me* and is now available from Spirit Marine.

and the Wetbike settles, upright, into the water. And again, there's no propeller to worry about."

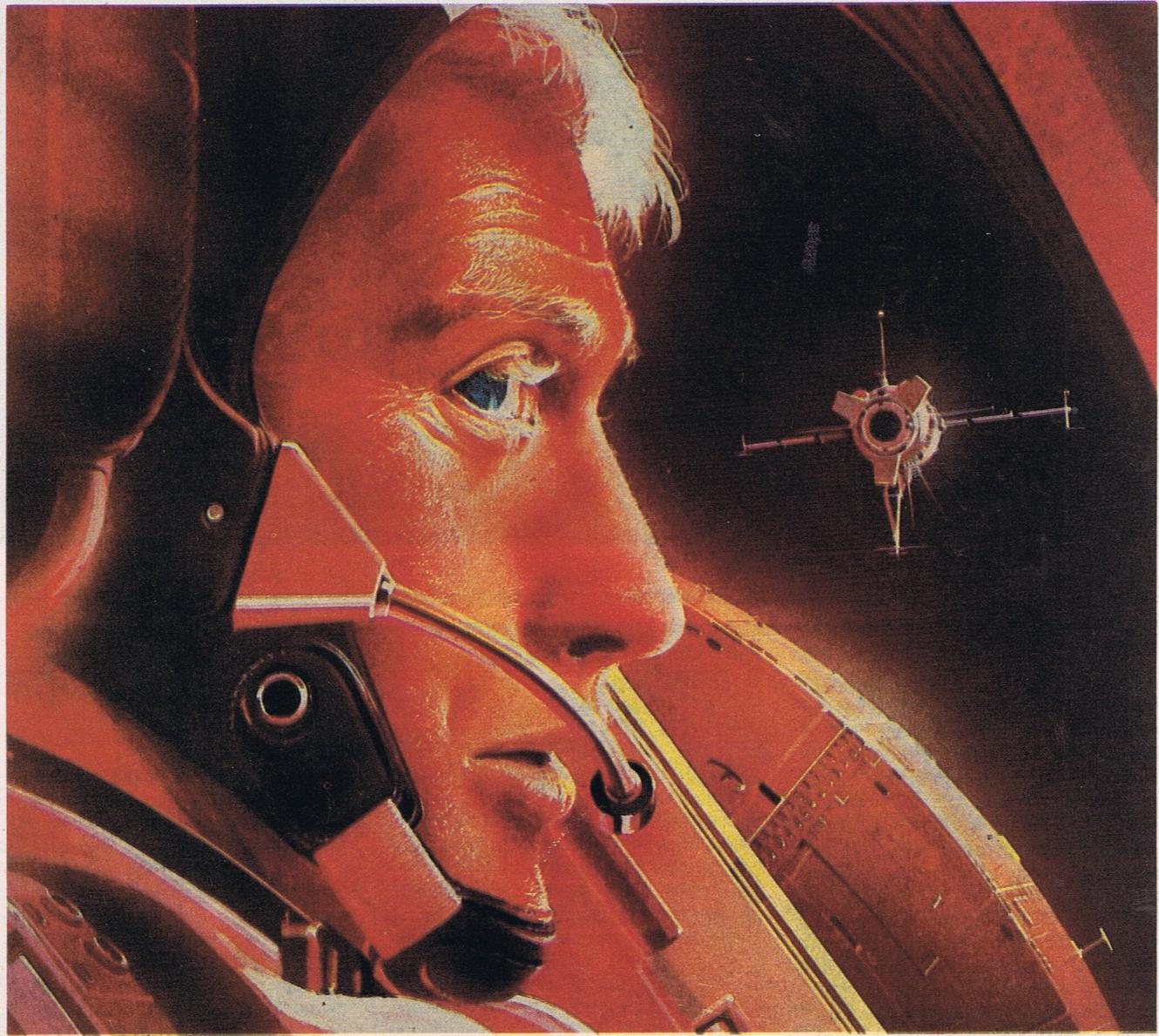
The Wetbike has a hull length of 7½ feet, a width of 2 feet and a hull height of 3½ feet. Its fuel capacity is 8 gallons and uses a mixture of marine oil and gasoline. Its stationary draft is 2½ feet and its planning draft is 4 inches.

For the name of your nearest dealer write Spirit Marine, Division of Arctic Enterprises, Thief River Falls, MN 56701.

Inventors and manufacturers are invited to submit items for inclusion in this column. Please forward all information to David Hutchison, Science Editor, FUTURE, 475 Park Ave. S., 8th floor, NY, NY 10016.

## Living In The Future An Interview With Artist

# shusei nagaoka



Artist Shusei Nagaoka started out doing illustrations for Japanese boy's magazines such as this astronaut portrait.

By JOSEPH KAY

**L**ess than ten years ago, SF artist Shusei Nagaoka arrived in the United States from Japan. All he brought with him was his talent and his vision. Today, he lives in the future tense, painting surreal surroundings for such rock superstars as The Electric Light Or-

chestra and Earth, Wind and Fire.

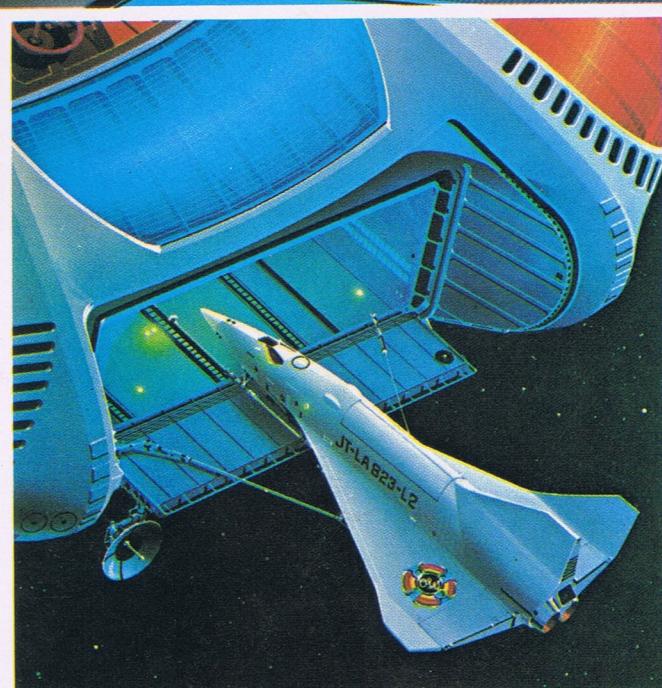
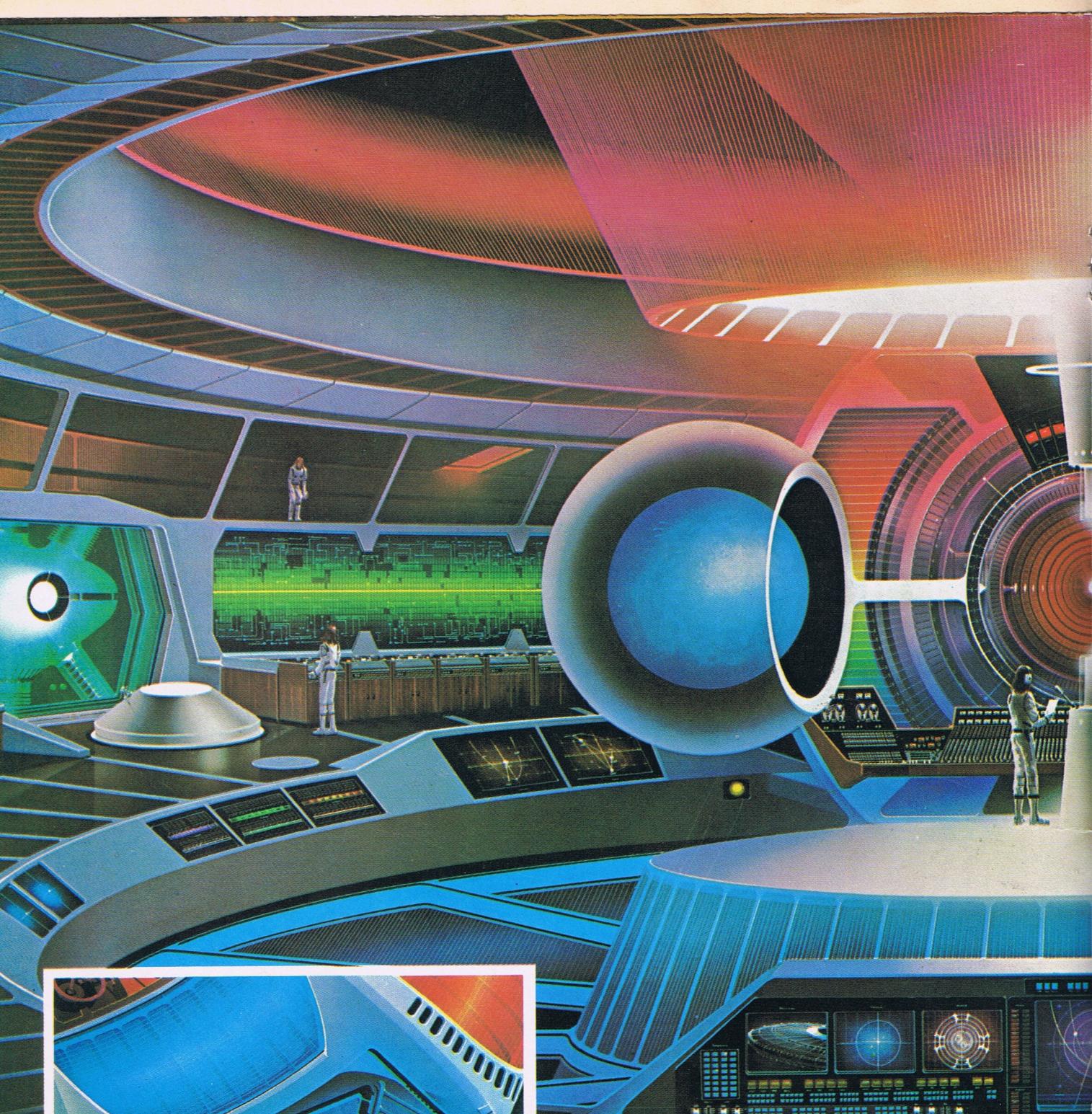
Shusei Nagaoka lives in a world of his own—a colorful landscape populated by shimmering starships, oversized sea-monsters, disco-dancing droids and decidedly dangerous female aliens. Shusei is a science-fiction illustrator on the rise and, much to the delight of thousands of SF fans, regularly shares his

private visions in a very public way.

If Shusei's name doesn't quite ring a bell, his work will surely strike a responsive chord with fans...or even an entire melody. Last year, when the Electric Light Orchestra decided it needed a

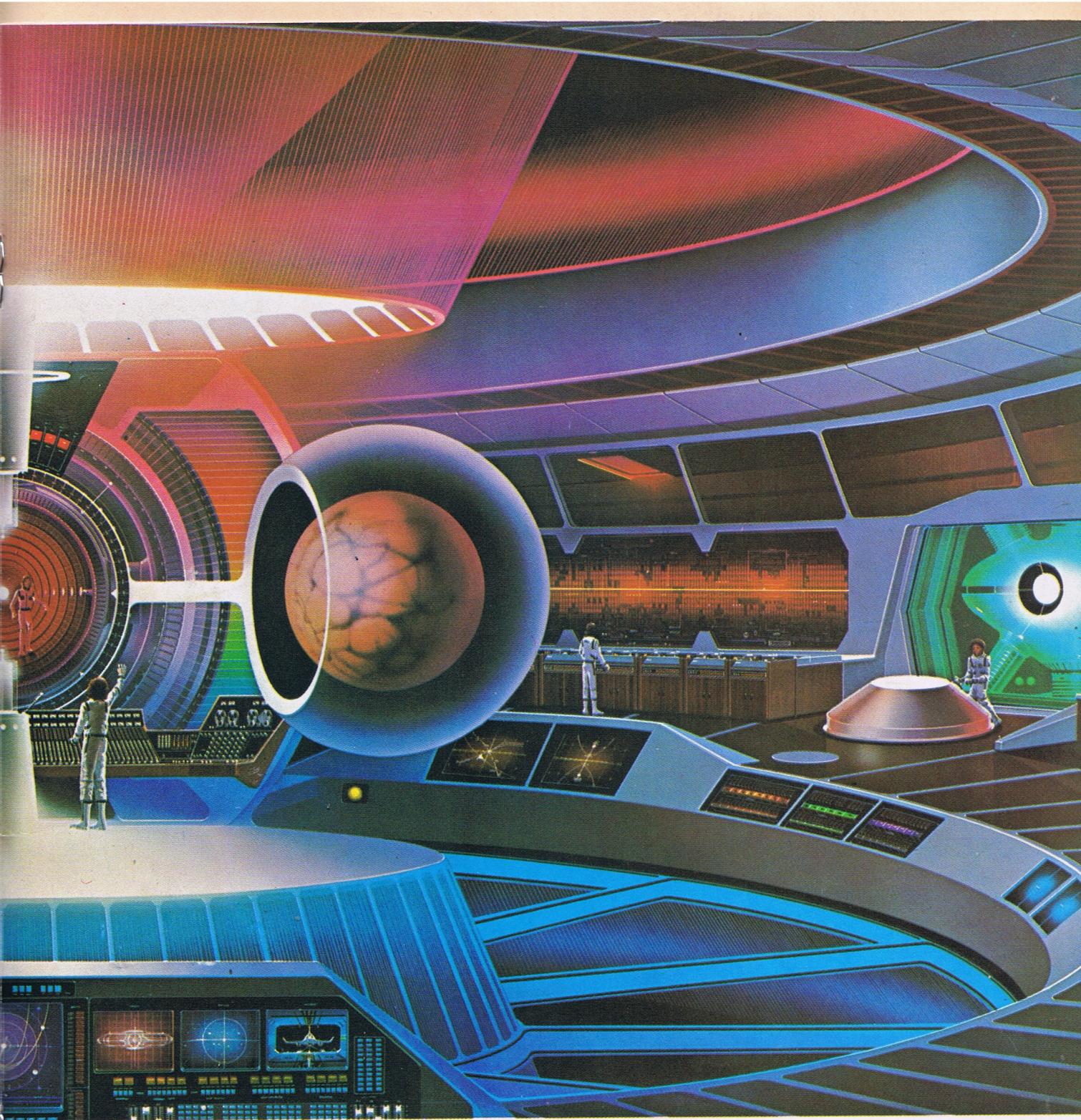
On a deserted beach, a group of futuristic vacationers pursue the art of fishing.





Left: Nagoaka's most famous musical creation was for ELO's *Out Of The Blue* LP. Above: on the inside of the album cover, the interior of the saucer space station was revealed. The graphic proved so popular that ELO is currently touring the U.S. on a flying saucer concert stage.

space-age look for their *Out Of The Blue* double LP they approached the talented illustrator with the project. Shusei readily accepted the job. The resulting cover, spawned in the age of *Star Wars* and *Close Encounters Of The Third Kind*, featured a fleet of rocket ships, a gigantic "ELO" flying saucer-station and wound up being displayed in record store windows coast to coast. Gigantic posters were made and, eventually, the designs were incorporated into an animated TV commercial for the band.



Later, when Casablanca Records decided it wanted to import the metallic disco sounds of Europe's Munich Machine troupe, they gave the project to Shusei immediately. He concocted a pair of disco-dancing robots who made an appearance on the cover of the group's 1977 LP, *The Munich Machine*. They proved so popular that they were brought back for an encore on this year's *Whiter Shade Of Pale* release by the band.

During the past two years, Nagoaka's surreal sense of science-fiction serenity

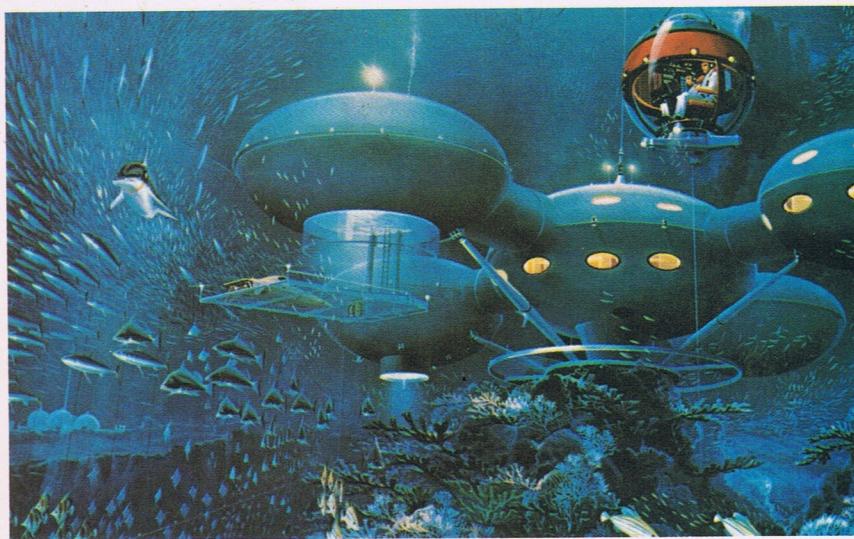
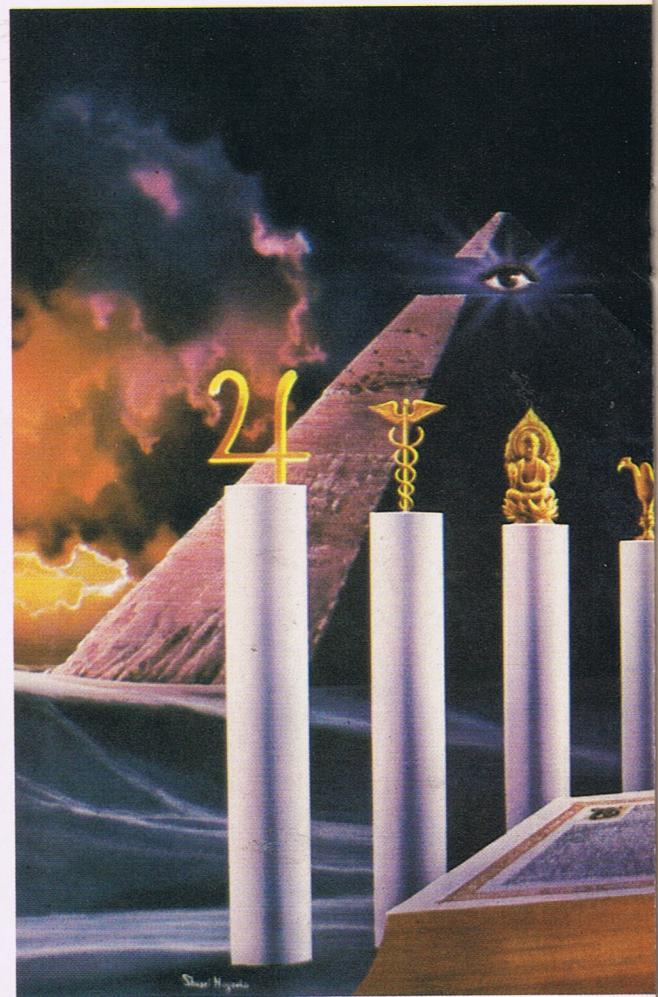
has become sort of an underground legend on the West Coast and the rock music crowd has taken full advantage of it. Of late, he has completed cover illustrations for everyone from The Carpenters to The Godz. For Shusei, an SF fan since childhood, this newfound mixture of science fiction and album graphics is a decided blessing. "My work is fun," he concedes.

Shusei's "fun" began, in a professional sense, in homeland Japan during the 1960's. Raised in a post-war country

obsessed by science and futuristic planning, the young artist-to-be became fascinated with the realms of both science fiction and science fact. He began reading the popular SF-dominated boy's magazines of Japan (regular publications geared to young men and featuring articles on *everything* under the Sun, from space science to jogging sneakers) and regularly attending science-fiction film matinees.

During his childhood, he showed an interest in art. By manhood, his interest had become an obsession and, finally, a profession. Within a twinkling, he found

## BRINGING IN TOMORROW AT LOS ANGELES INTERNATIONAL



**ABOUT THE POSTER:** Shusie Nagoaka envisions the city of the future as a lofty seaport. It accommodates "three-dimensional" transport and handles everything from airborne hovercraft (center of structure) to cargo subs (lower left corner). He foresees his portside warehouses as being so automated that orders will be accepted, filled, processed, loaded, delivered and billed without human interference. Ground transport will be computerized. Note: To safely remove poster without damage, open center staples, lift out poster, then reclose.

Upper left: Shusei's spacey Concorde design graced the cover of *West*, the magazine of the Los Angeles Times. Above: A male and female robot are obviously hot to trot on this LP cover executed by the artist for Europe's *Munich Machine*, a disco-oriented rock group. The two dancing droids proved so popular on this album jacket that they were brought back, one year later, for the band's second United States release. Left: Shusei's conception for an underwater city of the not-too-distant future.



A detail from the artist's work for rock group Earth, Wind & Fire. When not painting for clients, Shusei designs surreal cities of the future, an artist's job because "architects are too restricted by their obsession with *function*."

himself actually drawing for many of the same boys' magazines he had been reading not that long ago. He began by illustrating science and adventure pieces; sleek hot-rods, turbine engines and World War II fighter planes flowed from his brushes. Finally, spaceships, aliens and submarines made their way into his expanding portfolio. Cities beneath the sea were pictured side by side with articles on TV stars. Flying saucers shared the page with music reviews. Shusei's fame as an SF illustrator spread. Before long, he began thinking that, since America was a futuristic country, perhaps his art would find a larger audience here.

Arriving stateside a few years ago, he began doing realistic illustrations for a number of magazines, including *West*, the Sunday supplement of the *L.A. Times*. Eventually, he entered the field of advertising and, to this day, he spends half of his time doing ad art — such as motorcycle paintings of Honda campaigns.

Even while toiling in the commercial art trade, however, he continued to manifest

his love for science fiction through a series of brilliantly realistic paintings. Eventually, some of rock and roll's finest took note of the artist's sleek designs and approached him with the idea of doing album covers. He jumped at the chance. After an album or two of non-SF artwork, his big break came from the aforementioned British band, ELO.

"They wanted a big space power-plant," Shusei recalls from his California studio/home. "Rocketships. Everything. They weren't specific about how everything should look, though. I designed my ships from images and photographs that I liked. Images from *2001*." Shusei's space age portrait (both on the outside and inside cover of the ELO album set) created an immediate furor in the music industry. The graphic was unanimously hailed as brilliant. Not at all fazed by the praise, Shusei today modestly admits, "Now that I've seen *Close Encounters*, I would probably approach the assignment differently."

Teaming with R&B rockers Earth,

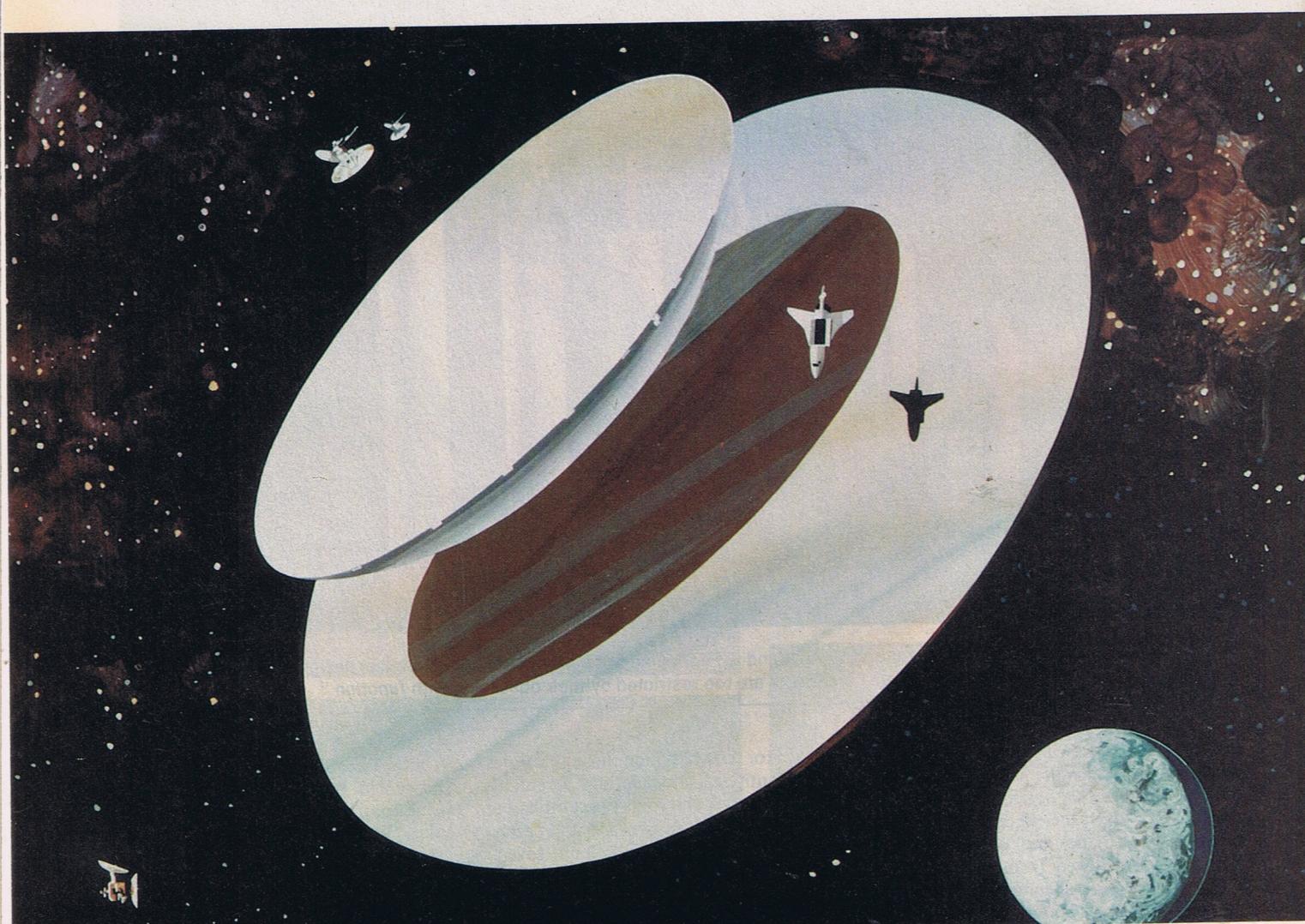
Wind & Fire, Shusei worked on an out-of-this-world pyramid power cover that would portray the group's more mystical side. "We wanted to show that man progresses, he reaches, but he always remains the same...today, as in ancient times."

Despite his newfound popularity, Shusei still divides his time between his advertising art and his SF rock antics, a lifestyle that he finds quite enjoyable. As new album covers are worked on, such as *Maze*, *Flight* and *Parlet*, one wonders exactly how far the Japanese artist's vision will take him.

"I always think in terms of the future," he comments with a smile. "The future is my home."

And, according to Shusei Nagaoka, the future is the best of all possible worlds for an artist to inhabit; a limitless realm wherein the mind can soar as high as any spaceship. Gazing at his artwork-laden room, the oriental artist scrutinizes his intergalactic landscapes and flashes a relaxed grin. "I have great freedom," he states.

## The Galactic Club: Toward the Ultimate Encounter?



A concept of an intermediate size (300 meter) space SETI system antenna. System is in geosynchronous orbit or slightly beyond.

**A**re there "other" civilizations out there, among the millions of stars that make up our Galaxy? FUTURE #4 examined the prospects for the existence of such extra-terrestrial intelligence.

If there really are highly advanced technological races in the Galaxy, (at least those of them that feel, like humans do), the urge for physical expansion and exploration may have led them to build mighty interstellar spaceships. How long would it take such a supercivilization to colonize the Galaxy?

Colonization time depends on travel time, time to establish a settlement

(possibly on more than one planet of the new system) and a new population with an adequate industry and resources, and time to build a new fleet for further expansion.

Let's assume that a civilization must reach a "critical mass" of, say, ten billion people to develop motivation for interstellar travel and to be able to afford it (Earth today: about four billion). Let's further assume that from each established society 10,000 individuals, along with whatever plant life and livestock they need (perhaps in form of deep-frozen genetic material and embryos), succeed in reaching another star in their Space Arks and settling at least one planet.<sup>1</sup> If the

average distance between planetary systems is 10 light years (LY) and the travel velocity 1/10th the speed of light, it would take our expedition 100 years to reach a new system. To establish a settlement and build up a new population of ten billion would then take another 470 years, if the annual population growth rate is 3%. Launching a new expedition of 10,000 colonists, it would then take again 100 years

*Jesco von Puttkamer is Program manager of Space Industrialization and Integrated Long Range Planning Studies at NASA. He is also the technical advisor for Paramount's forthcoming Star Trek movie.*

## Investigating space with Jesco von Puttkamer

to reach the next planetary system, and 470 years to build a society. Total colonization time for each new system (and to advance ten light years), is thus 570 years. In our scenario, colonization of the Galaxy would take place at an average expansion rate of 2 percent of the speed of light, or five million years to cover the Galaxy from edge to edge, assuming just one single star-faring race.

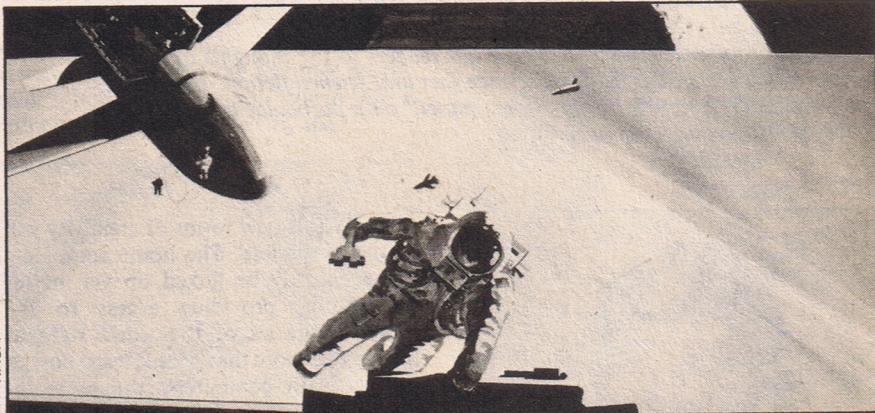
What if the hypothetical race nearest to Earth, an average 200-300 LY away, is engaged on such a long-range colonization program in this very moment? If they embarked on it 15,000 years ago and are headed our way, they'll reach our solar system any day now....

But what are the odds for such a surprise visit? Not all of our one million supercivilizations can be expected to be capable of or interested in paying the high price of colonizing the Galaxy, to "...explore strange new worlds, to seek out new life and new civilizations." If only one percent of them are roaming the Galaxy seeking suitable planets, there would be a total of ten-thousand star-travelling supercivilizations with an average of ten million planets each to visit (assuming random distribution of 50-100 billion planets). If each civilization's "star trekking" effort is determined enough to yield one new planet per year, it would take their fleet ten million years to visit all planets, or the equivalent of a supercivilization's assumed lifetime.<sup>2</sup> If they started checking planets about 100,000 years ago, each civilization would have catalogued only 100,000 planets by now, and the chance for Earth to be visited this year would be negligible—one in 9.9 million.

All in all, we can conclude that interstellar flight by mere Earthlings is out of the question not only for the present but also for at least the next two or three decades. It is not a physical impossibility but an economic one, and new breakthroughs must occur to enable us to travel to the stars. In the meantime, SETI offers a chance of finding a star race that may help us to make such breakthroughs happen.

But why would a supercivilization go to the enormous expense of erecting an

Art: NASA



A close-up view of the very large space SETI system antenna.

omnidirectional one-way beacon in the first place? Could it be that a society's future development is to some extent contingent on reception and assimilation of information from supercivilizations, perhaps leading to a rapid jump of the society to the highest level? This so-called "feedback effect" was suggested first by the German astronomer Sebastian von Hoerner. The information thus received may be the chance for a civilization to "improve" itself rationally. In its widest sense it could perhaps mean that contact with extraterrestrial intelligences is a necessary prerequisite for a race to survive and become a "supercivilization", which would make SETI one of the most imperative ventures of mankind. Can we afford the risk to assume this isn't so?

As suggested by Bracewell and others, the emerging race would then join a galactic community of supercivilizations and, in that process, in quasi repayment of the galactic equivalent of a "student education loan," assume its share of the "Club's" obligation to establish a beacon and in turn help other lower civilizations to make the grade—a bit like a galactic chain-

letter program. As the Project Cyclops report commented, the start of such a community chain effort is difficult to explain but may have been like the beginning of life itself—not in any single trial by some earlier race, but after perhaps millions of attempts, of which only a few (or one) need to have been successful to start the whole process.

The first interstellar messengers from Earth are already underway.

Two *Voyager* spacecraft are currently heading out toward the planets Jupiter, Saturn and points beyond, to leave the solar system in 1989 when they cross the orbit of distant Pluto. Plodding through the interstellar abyss at 17.2 km/sec, they will take at least 40,000 years before either spacecraft approaches another star, passing it at a distance of about one light year, travelling for eternity into infinity. They are carrying a 12-inch copper disk with a recording of greetings in sixty human languages, sounds of Earth, photographs and drawings, and musical selections. The printed words include a message from President Jimmy Carter which reads in part:

*"This is a present from a small distant world, a token of our sounds, our science, our images, our music, our thoughts and our feelings. We are attempting to survive our time so we may live into yours. We hope someday, having solved the problems we face, to join a community of galactic civilizations. This record represents our hope and our determination, and our good will in a vast and awesome universe."*

<sup>2</sup>Our supercivilization would probably send out other groups at later times, but let's assume that they consider their cosmic duty done after dispatching enough ships to establish at least one 10,000-people colony.

## What will the next important breakthrough in the entertainment media be?

Future Forum is designed to expose our readers to the thoughts of a variety of experts in the fields of science fact and science fiction. Each issue will pose a new question to our "guest panel" on a particular aspect of SF, space-age technology or future trends.



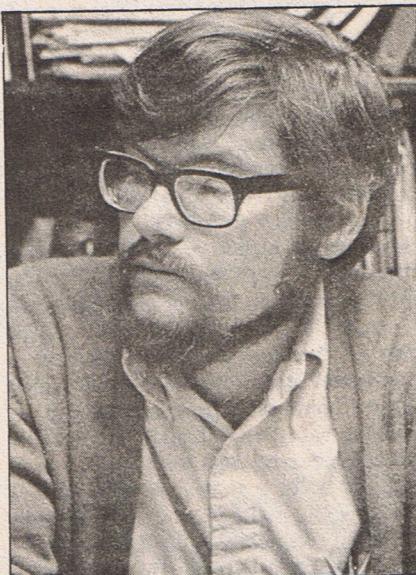
**DAVID GERROLD:**  
Author of *Deathbeast* and *The Man Who Folded Himself*.

I foresee at least three major divisions of entertainment development. The first will be in the area of motion pictures—these will evolve into events. Movies will have to be very big and very spectacular to lure an audience out to the theater. The next step is to increase the visual and aural realism of these experiences. A movie will become an overpowering physical as well as emotional experience.

The second avenue of entertainment will be the at-home media. This will include big-screen television, multi-channel stereo, home video cassettes and discs, pay-TV systems and home video games.

The third avenue of entertainment is one that is at present only embryonic; I see the growth of *home computers* as being the largest and most important growth industry of the next twenty years. At first, a home computer will be a status symbol, but ultimately it will be as necessary as the automobile. The applications of these computers will be limitless (not just video games). They will provide every person with the potential to be a publisher, a filmmaker, a philosopher, an

artist. Whole new forms of creativity will be made possible. The home computers will eventually be linked up via master data bank, providing access to the greatest libraries of the world right at home. The more that people learn how to interact with computers, the more intelligent the species will become.



**GREG BENFORD:**  
Associate Professor of Physics at the University of California. Gregory Benford is a theoretical physicist currently working in the areas of plasma turbulence and the dynamics of relativistic electron beams. A writer of science fact and science fiction, Benford won a Nebula in 1975 for the best short story of the year. His novels include *In The Ocean of Night* and *If The Stars Are Gods*.

The demise of the movie theater. The fatal blow will be the introduction of six-foot TV screens into the home and the increased popularity of the now familiar movie-only subscription channels.



**MARION ZIMMER BRADLEY:**  
SF author, originator of the Darkover series. Her novels include *The Heritage Of Hastur*, *The Shattered Chain*, *The Sword Of Aldones*, *Darkover Landfall*, *The Planet Savers* and *The Spell Sword*.

Hopefully, a total ban on all advertising for profit. Alas, I'm afraid it will wind up being just bigger and noisier supercrap dramas on bigger and noisier TV screens.



**BJO TRIMBLE:**  
SF artist, fan, writer and editor.  
Author of *The Star Trek Concordance*.

The next important advancement in entertainment will be Hollywood's startling discovery that there are no

black/white situations in life and that comedy as well as tragedy accompany the knowledge that we'll never get out of this alive. This will be coupled with the discovery that what we really want out of entertainment is, indeed, entertainment. We may be facing a whole new breakthrough in what the public is fed on TV and in the movies!

On the technical side, I think we'll have Bradbury's wall-sized TV within the reach of the public soon, along with full-length movies for home use. At that point, I think we'll see a return to the small, more elegant theater (where you actually dress up for shows and go to dinner first). It will once again become a social event. The elegance and relaxation of Getting Out Of The House will never be replaced by home entertainment centers. Take it from a tired mother!



### LARRY NIVEN:

Hugo and Nebula award-winning author of *Ringworld*, *World of Ptavvs*, *The Protector*, *Neutron Star* and *A Gift From Earth*.

The present advances are startling enough. We just bought a VideoBeam, which is a TV with a six foot screen, and a video recorder, and a set of Atari video games. They're changing our lifestyle. Even the big screen seems more immediate. The small TV screen makes some movies look ludicrous; like *2001*, which has to be shown big.

Feebies—movies showing all the traditional five senses—would *really* do it to us.

I've been playing with something stranger than that. Instant memory. In ten minutes of input you get the memory of having watched the twelve-hour ver-

sion of *War And Peace* or anything you damn please. You can remember having learned calculus (and you know it) or having invented it! You may even remember climbing Mt. Everest, frostbite and all (but the scars aren't on your own body) or being killed while exploring Mars (because they found the recorder on the man's body, still going). Watch for a story called "Flare Time" by me.



### CHARLES H. SCHNEER:

Producer of such films as *Mysterious Island*, *First Men In The Moon*, *Sinbad and the Eye Of The Tiger*, *The Three Worlds Of Gulliver*, *The 7th Voyage Of Sinbad* and *Jason and the Argonauts*.

A number of moves are already under way to enhance motion pictures and to make them very much more than a larger version of the TV screen. Even now, experiments are being made with light intensity on the screen, three-dimensional effects, different screen sizes and sound systems. Within the very near future it is safe to say that theaters as we know them will be as out of date as the Model-T Ford. A visit to a motion picture theater will very soon be a major event and producers and directors will be able to incorporate extraordinary technical achievements which will reduce television to its proper function . . . i.e., a purveyor of news, sports, actualities and entertainment in the home.



### JOE W. HALDEMAN:

Hugo and Nebula award-winning author of *The Forever War*, *Mindbridge* and *All My Sins Remembered*.

It's a close race between the widespread adoption of video-taping apparatus and the various manifestations of small, cheap computers.



### GAHAN WILSON:

World-renowned cartoonist whose work has appeared in a variety of publications including *Playboy*, *Punch*, *The New Yorker*, *National Lampoon* and *Fantasy & Science Fiction*; and in such books as...*And Then We'll Get Him and I Paint What I See*.

More sensitive methods of reading public reaction will lead to a dramatic increase in cowardly programming.



Fantasy Castle store manager Keith Mallow and two rubber-headed friends greet all SF lovers at the country's first slightly demented department store.

By RICHARD MEYERS

**S**cience fiction has frequently been able to capture the public's imagination, but it is only recently that it has captured their pocketbooks and wallets as well. In the past few years, all manner of businesses bartering science-fiction and fantasy items have sprung up. Comic book stores—like New York's Super Snipe and Massachusetts' Million Year Picnic—SF book stores—like Philadelphia's Hourglass and Cambridge's Science Fantasy Shop—t-shirt establishments, and head shops abound. Pharmacies, toy stores, magazine racks, neighborhood grocers, and even tag sales are being inundated with loads of imaginative wares. SF is no longer only fun and games: for many it is now a profitable way of life.

One of the biggest and best of these new companies is the California-based September Publications. "We developed at the same time that the success of *Star Wars* and *Close Encounters Of The Third Kind* added to the public interest in fantasy and science fiction," said Stephen E. Pierson, president of the organization. "What had been a 25-year hobby suddenly became a full-fledged business, sparking great interest from a large segment of the population."

September was not found wanting in the face of the SF demand. After mete-

oric growth in the relatively short space of a year, they opened the first full-scale science-fiction supermarket in the country, Fantasy Castle. "There have been many small comic dealers and many paperback book shops and many t-shirt shops and poster shops," said Pierson proudly, "but we believe that this is the first time anyone has opened a retail store containing all of these things tied to the fantasy motif."

Following this statement, Pierson flung open the store's door to a silent flourish of trumpets and gave FUTURE the grand tour. Stretching out before us was a virtual phantasmagoria of strange scenes from the colorful side of the imagination. A striking gallery section displayed the fantasy art prints of Ken Kelly, Boris, Frank Frazetta, and Paul Stinson, among many others, on canvas mounts, laminated wooden backs, and a variety of ornate frames. Prints, Pierson was quick to point out, that they had brought to public attention in the first place.

"In July of 1976 we began publication of posters, prints, and portfolios of some of the finer graphic artists under the auspices of Earth-Art Graphics. Soon we graduated to a full scale business and a full line of poster prints. We have brought to the public eye the work of Esteban Maroto, Bill Stout, Frank Brunner, Barry Smith, Craig Russell, Dante

Volpe, and Richard Hescox, in addition to the more famous names of Boris, Neal Adams, and Stinson. With the help of Mir, Ltd., these prints have received national distribution."

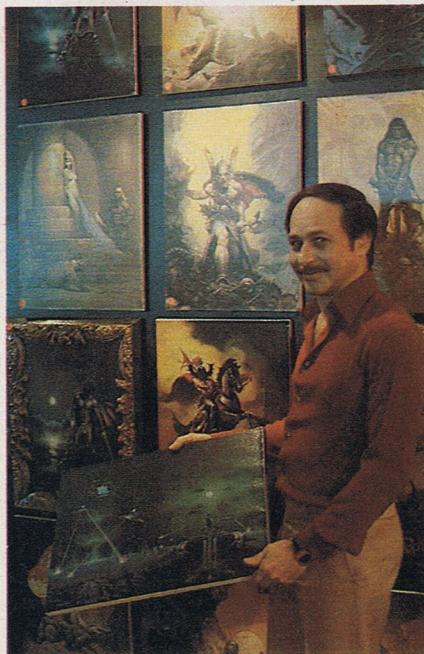
Next we came upon a veritable Valhalla for the SF reader: rack upon rack of paperback books—everyone from Isaac Asimov to Roger Zelazny, everything from *Alice In Wonderland* to *Zardoz*. September and Pierson were not found lacking in this publishing area either. "A second division of our corporation, Nova Distributors, became heavily involved with magazines, comic books, and paperbacks relating to science fiction and fantasy. It is our aim to have available at one source all SF-related books currently in print from every publishing house."

Indeed, Fantasy Castle had titles ranging from the latest Del Rey releases to *Doom Star*, Carlyle Publication's first and only science-fiction novel. Stumbling blithely through the forest of brightly colored books, we spied the wall of comics, lined with bins of classic works packaged in plastic. The collector can browse to his heart's content through the likes of Marvel, National, Charlton, Warren, and, happily, *STARLOG* and *FUTURE*. But that isn't all, by a long shot.

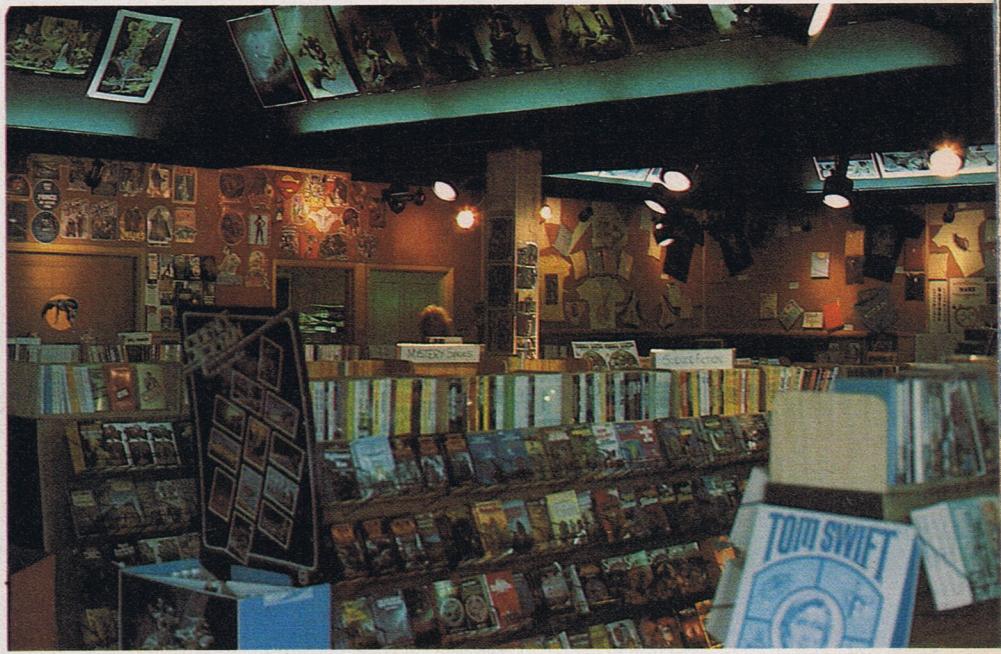
"In addition to all this," Pierson pointed out, "there is a boutique containing hundreds of fantasy-related

*There are book stores and there are comic stores and there are art stores and there are t-shirt stores, but an enterprising group in California has instituted the first SF comic-book-art-t-shirt shop.*

Photo: Courtesy Steve Pierson



Fantasy Castle/Nova Distributions/September publications boss Steve Pierson.



The multi-genre splendor of the California-based Fantasy Castle may soon pop up all over the country through franchises.

t-shirts and designs, a wide selection of fantasy-related jewelry and knick-knacks, and, finally, a display section containing fantasy-related games and miniatures." Suitably impressed, we retired to the relative drabness of September's executive offices, where Pierson, vice-presidents Tom Moranto and Marc Shimerman, manager Keith Mallow, and over-all second in command Diane Hix guide their burgeoning concerns through every science-fiction realm.

But after all this, we wondered, what worlds were left to conquer? "Our plans for 1978," Pierson explained, "include a set of greeting cards, 24 matted prints, including 10 Marotos and 10 Stinsons, a couple of new, limited edition portfolios, and a 1979 "Heroic Fantasy" calendar utilizing the work of Ken Kelly and Boris Vallejo." September, like the genre it represents, is nothing if not futuristic. Long term plans incorporate a move into paperback production and the introduction of a Fantasy Castle chain on both coasts.

The fear of bankruptcy and failure that often plagues new businesses is but a vague rumor to the eager employees of September Publications. It is something that only happens to someone else. Their biggest problem, according to Pierson, is "to keep from growing too fast. I don't want us to over-extend ourselves." **F**

## Welcome To The World's First **SCIENCE-FICTION SUPERMARKET**

*"What had been a hobby and a venture, entered into because of a long love affair with science fiction, has suddenly become a full-fledged business."*



# Civilization in Space:

*The Possible Dream*

## CHAPTER FIVE

Freeman's Rebellion

*"The Starlight Cafe provided the sight, sense and feel of being out in the crystal majesty of space, within the security of a warm, comfortable environment."*



# Civilization in Space: The Possible Dream

## Chapter Five: Freeman's Rebellion

*This series is based upon the most recent findings of scientists and engineers who propose space colonization utilizing the materials and technologies presently available. The purpose of these dramatizations is to explore the commercial endeavors, political structures, opportunities for experimentation and exploration, and the quality of daily life available to the 10,000 hypothetical inhabitants of a realistic, totally artificial new world in space...*

By HOWARD ZIMMERMAN

**I**t was 6:10 a.m., Eastern Standard Time, on the morning of November 21, 1996. Colonel Joshua Freeman sat at the controls of a computer console inside of the world's first self-sustaining, permanent orbital habitat—40,000 miles above the Earth. The intra-station line on the comm-board flashed. Freeman punched up the call.

"Visual contact confirmed, sir. Two U.S. Aerospace Corps troop ships. ETA orbital injection... 10 minutes. Intercept us in... 23 minutes, sir."

Freeman straightened in the console chair (in one-tenth gravity the body has a tendency to go limp and start to curl). "Thank you Nelson." He switched on the universal intercom so that he could be heard throughout the habitat.

"This is Freeman. May I have your attention, please. The ships are on their way... we are committed. Laser cannon crews stand by. Docking bay detail—prepare to repel boarders. But *no one* is to take precipitous action. We are not looking for a war with the United States, we're looking to avoid one! So sit tight until you hear from me. Good luck to all of us... That's all."

Freeman cut off the intercom and looked around at the incredible room in which he sat. Although the concept and design were his, he still enjoyed and appreciated the reality.

The "Starlight Cafe"—as it had been christened by the crew—provided the sight, sense and feel of being out in the crystal majesty of space within the security of a warm, comfortable environment. The enormous, round room was 150 feet in diameter, 35 feet high and situated in the one-tenth gravity area of the habitat. Soft-

ly sparkling tables made from composited Moonstone were placed throughout the room. Each chair had a private listening system that allowed the occupant to choose from thousands of tapes stored in the computer console at which Freeman sat. The lighting came from floor-to-ceiling tubes, each 6 inches in diameter, that were filled with fluorescent gases. Electrical stimulation caused the gases to emit their differently colored lights at any desired intensity—from candlelight to midday Sun.

But the main attraction of the Cafe was the three huge view-screens in front of which Freeman now sat. Each was 30 feet high and ran in a full 90-degree arc around the circular wall. The screens were designed to display images received from the largest optical telescope ever built—which was in stationary orbit a half-mile above the habitat. The telescope was actually a vast array of meter-wide mirrors kept in position by tiny gas thrusters mounted along their circumference. Their positioning was constantly controlled by the computer in the Astrophysical Research Center. With the capacity for individual targeting, the computer could command the array to focus on several objects in different parts of the sky at the same time. The computer in the Cafe allowed the operator to display either live or tape-stored images on the 30-foot high screens.

Freeman could not help but stare at the image on the screen to his left. He could clearly see two glistening teardrops moving slowly and inexorably closer to his inside-out world. He knew these to be the U.S. troopships that had been sent up for his "protection." Forcing himself to look away, his eyes caught the image on the far screen and were held there. He saw a series of interconnected domed structures on a

bed of brown-gray sand that reflected a harsh, glaring sunlight. He could see ground vehicles moving about and a ribbon of black metal laid out in an odd, rubber band-type pattern that he knew to be the lunar mass-driver. Freeman recognized the bizarre setting as U.S. Moonbase One, and he knew it well. He had designed the base and supervised its construction.

Freeman glanced again at the closing troopships and then back at the Moonbase. "That's where it all began," he thought to himself. "Ten years and a hundred lifetimes ago. If I had understood what I was doing then, I might not be sitting now on the edge of World War III..."

\* \* \*

Ten years ago, Freeman had been on top of the world. He was the ranking member of the U.S. Aerospace Corps—he had participated in the Sunlab Three mission, spending six months in a zero-g orbital laboratory. He was an acknowledged expert on closed environmental systems, an architect responsible for some dozen futuristic hotels and apartment complexes—all ecologically planned and containing recycling facilities. He was also an accomplished mineralogist, a talent which gave him his first shot at the Moon, and he had the well-earned reputation of being a crack rocket-jockey (Corps slang for a space vehicle test pilot).

Freeman was riding so high that he intentionally sought out the most challenging engineering-systems project he could find. Having found it, he proceeded to singlehandedly design the complex, self-contained ecosystem known as Moonbase One. Then, after designing it, Freeman personally took on the job of selling it to both NASA and Congress.

Actually, the concept proved rather easy to sell. The United States was looking for a way to regain the economic edge in the world marketplace. Throughout the 70s and 80s, Japan had steadily expanded its control over the production and refinement of new technology and by 1985 was generally admitted to have achieved a dominant position in supplying the world with the hardware and software considered necessary for "modern living."

But the U.S. still had the lead in the utilization of near-Earth space. During the early 80s, the U.S. had put into low-Earth orbit a half-dozen industrial processing plants for zero-g production. These promised to become profit-making enterprises when they reached their full potential, especially the orbital factory owned and jointly run by the U.S. government, American Castings, Titus Transportation and International Steel and Aluminum.

However, the Japanese were about to take a step that would dramatically close the gap—and perhaps draw them ahead.

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The preceding double-page spread: The Starlight Cafe, as envisioned by space artist Ron Miller. This one-tenth gravity lounge is located aboard the world's first large, self-sustaining orbital habitat. The 30-foot high viewscreens display images picked up by the habitat's huge optical telescope system which is in stationary orbit.

*This chapter of "Civilization in Space" is dedicated to Ellen, Bob and the young Lion—Joshua Freeman Bruce.*

Japan announced plans for the biggest space spectacular ever attempted. They signed a contract with the world's largest international industrial consortium, Combined Technologies, for the delivery of a geosynchronous, solar power satellite system to provide the raw energy for their major industrial and population center. The transceiver system to collect and convert the microwave signals would be built over Tokyo Bay.

Freeman felt it imperative that the United States immediately launch a program for cheap, mass production of solar power satellites. And that meant using non-terrestrial materials.... Ergo, Freeman's Moonbase, equipped with advanced mass-driver facilities for delivering Moon matter to Earth orbit to be used in construction.

Although the U.S. wasn't about to go into the business of producing its own solar power satellite systems, it could make the raw material available to private consortiums which could manage the orbital construction facilities. There was another good reason for the U.S. to want to develop (or at least lay claim to) the lunar potential: the Soviet Union was about to announce plans for a Moonbase of their own.

And so Freeman had presented his plan to NASA which, with little modification, had presented it to Congress as part of their annual budget request. The world situation being what it was, Congress and the President (not to mention American industry) were ready to establish the construction of a Moonbase as one of the nation's highest priorities. That was in 1987.

In 1988, Freeman was on the Moon to personally supervise the initial construction of the base. That was where he had met Cris—then Captain Cristobal McKenzie of the U.S. Aerospace Corps, there to oversee construction of the solar power satellite and transceiver system that would satisfy the Moonbase's energy requirements.

The two of them had worked well together, the basic survival atmosphere of the small, orbiting workshop/living quarters giving them a chance for personal intimacy, as well as establishing a close working relationship.

When their 8-month tour was up, they returned to Earth, promising to join forces and design the first true Starship. Instead, Cris had quit the Corps and run for Congress. She was now Senator Cristobal McKenzie, (D-Kansas), and Chairperson of the Senate Orbital Projects Appropriations Committee. A powerful person on the Hill and definitely one to have in your corner.

Freeman had come back with his imagination fired by the possibilities of future space developments and his soul stirred by his long stay on the Moon and in outer space. One thing that Cris had said during their trip back kept bothering him, though.

"Fun, mister... F-U-N, FUN!" She had said it with her eyes ablaze, her voice sounding desperate. "That's what we've carefully left out of space—and kids! And *civilians*. You know, people who don't have to salute?!!" She was right, of course, but he had been confident that it would all come to pass, in time... somehow.

\* \* \*

Freeman had gone on inactive duty, at his own request, when he got back to Earth. He wanted to analyze his options, see what offered the greatest challenges, the greatest rewards.

When Disney Enterprises approached him, in August, 1989, he was intrigued. Disney had continued to grow and explore new types of planned communities and parks during the 1970s and 80s. The success in Florida with EPCOT—the Experimental Prototype Community Of Tomorrow—had been followed with ecologically (and economically) sound community-parks in Tokyo, Brazilia and Zaire. Now they were interested in developing the concept of a completely self-sustaining, planned community—sort of a Moonbase on Earth. They wanted Freeman to head the research and development of the proposal. He said he'd let them know at the end of the week.

That Friday, Freeman called Chad Jervil, Assistant Deputy Director of Disney Enterprises, by visifone. Jervil plugged the call into his conference line and six members of the Board of Directors picked up on it. The image on Freeman's screen instantly rearranged itself into a seven-way display, with Jervil's face across the top and the other six in two rows of three images beneath it.

"Gentlemen. In reference to our discussion earlier in the week—yes, I am interested. More than that, I'm excited. However, I cannot accept the assignment." Immediately there was an unintelligible babble as the fone's voiceputer tried desperately, but unsuccessfully, to compensate for vocal interference. "Please allow me to explain myself," Freeman said. He had not shouted, but the hard edge and tone of authority in his voice had a way of cutting through noise. As the clamor subsided, Freeman continued.

"I am excited by the scope of the project, yet disappointed by its lack of vision. Gentlemen, you should not be constructing this self-contained world on Earth...it belongs in orbit." Smiles flickered briefly across the faces of a few but none laughed. They knew what this man had already accomplished. Jervil leaned closer to hear.

"What I see, as a natural outgrowth of your work in terrestrial environments, is the application of what you've learned about closed-systems management to an orbiting habitat; the *ultimate* habitat: Disney's World." He let the sound of that roll around in their heads for a bit before he went on.

"Disney has worked successfully on its

last few projects with a variety of multi-national corporations, as well as all of the American industrial giants. Your track record is excellent—every venture has proved to be a successful money-maker for all parties. What I propose now is that Disney combine with several of these diversified conglomerates in order to finance the operation. In return, half of Disney's World will be devoted to industrial research and development, as well as the manufacturing of orbital hardware. Gentlemen, I propose to put into orbit a factory capable of handling contracts for the construction of anything from surveying and communications satellites to shuttlecraft and mass-driven starships. We'll smelt our own ore (Moonbase One should have its mining and mass-driver operation in order by the time we can take advantage of lunar raw materials), make our own steel and glass and combine the waste oxygen with hydrogen hauled up from Earth to create a water supply.

"We can build a sophisticated multi-science research center. Orbital optical telescopes that can take in light from halfway across the universe have been designed but never built—we can construct such a telescope near the habitat and locate its control, monitoring, storage and power systems in an Astrophysical Research Unit, part of a complete Science Research Center.

"The other half of the habitat is the majority of the inside-out world itself. (The manufacturing and research facilities being located in a series of tubular rings that extend out along the habitat's north and south axial poles.) We'll leave as much open space as possible—have it totally landscaped.

"We'll build housing facilities to accommodate up to 5,000 tourists at a clip—one-week minimum stay—an additional 1,000 units for resident staffers and their families—that'll mean schools and all the usual services, but we can handle it. There will be rides and attractions, of course—we can do wonders in a variable-gravity environment—perhaps shuttle visits to other orbiting stations; tours of the automated production facilities. But the big attraction will be the inside-out world itself—a big, fantasy vacation land in orbit: the Ultimate Pleasure Park.... Disney's World."

And so, Disney Master Plan #23 was born.

\* \* \*

The two major details—and potentially devastating obstacles—that needed attention first were the formation of the consortium that would run the project, and finding, as a co-sponsor, one of the signees to the Outer Space Treaty of 1967-Amended 1980. The treaty stated that all space activities had to be under the "authorization and continuing supervision of an appropriate State party to the treaty." Although all space treaties were in the process of being rethought and some already

rewritten in the light of new technological developments, this one was still valid. But there were many countries that had signed the pact, including the logical choice, the United States.

The U.S. government had expended much of its waning resources in the establishment of its Moonbase; construction of the sophisticated orbital manufacturing facility that would turn lunar material into solar power satellite systems had not even begun. Since Disney's World would solve this problem and also offer a base for constructing spacecraft *already* in orbit, Master Plan #23 soon had its co-sponsor.

As for the consortium, Disney aligned itself with eleven corporations and private foundations which, collectively, became known as "Diverse Wonders, Inc."

Freeman spent 3½ of the next five years living in space and supervising construction of the massive habitat. His visits to Earth became increasingly shorter as it became more difficult for him to be at ease at the bottom of the planet's 4,000-mile deep gravity well.

On September 30, 1995, Disney's World became operational. The interior was pressurized and relays tripped to allow stored-up energy to flood through thousands of miles of cable and fibre, bringing light and power to the inside-out world of wonder.

It was an historic day, the significance of which was not lost on the other contending technological nations.

The Japanese solar power project had been completed early in 1994, and all initial tests had been quite encouraging. They were still having some problems with their transceiver system but had already entered into private negotiations with the U.S. and Diverse Wonders for the purchase of additional—and much less costly—solar power satellites.

Work was also continuing on the expanding U.S. and Soviet Moonbases, and the Russians were also constructing advanced orbital-manufacturing facilities. Both had also successfully tested their lunar mass-drivers and that fact, coupled with the activation of Disney's World, caused a problem that threatened to put a stop to all space projects—current and future.

The People's Republic of China quickly launched formal protests at both nations, using the U.N. as its forum. Their complaint was legitimate. Even though there had been a reconvening of the international space treaties talks at Geneva, all operative treaties and agreements stated that the Moon could not be claimed as national property. Moreover, the development of the Moon's natural resources was agreed to be a project that must benefit all humanity—not individual nations. Of course, the Chinese didn't really give a hoot (they had their own successful alternative-energy program) until they got wind of the Japanese-American-Diverse

Wonders deal. Their propaganda blitz was successful though, and both the U.S. and the Soviet Union agreed to suspend their lunar mining operations—pending the outcome of the talks in Geneva.

It was in the midst of this heated international debate that something totally unexpected happened: a space catastrophe of such devastating proportions that the planet Earth teetered on the brink of nuclear obliteration.

\* \* \*

It all started innocently enough. It had been decided (and Freeman concurred) that it was time to allow a V.I.P. inspection tour of Disney's World. It had been operational for a full year—the science station was completely staffed and functioning, as were the hydroponic farms and livestock-cloning facilities—providing food for an expected full complement of tourists. The parks, forest and garden areas had all grown sufficiently to give the habitat's interior the smell and appearance of a verdant wonderland. Before officially opening the Pleasure Park to tourists, Diverse Wonders wanted to drum up a little advance publicity and potential business.

On the morning of November 17, a group of 100 very important people assembled at the Equatorial Rowandan Spaceport, where they were graciously received by representatives of the Rowandan and American governments and of Diverse Wonders, Inc. The invited guests included two U.S. Senators—one of whom was Cristobal McKenzie—representatives of the governments of Japan, China and the U.S.S.R., corporate executives from the various arms of Diverse Wonders, as well as other multinational businesses, representatives from several other equatorial nations plus a large, international contingent from the press and other media.

The shuttle was a sleek, second-generation Earth-to-orbit bird, larger than an old Boeing 747 and not requiring strap-on rocket boosters. Diverse Wonders was having a fleet of them built to service Disney's World. Takeoff was uneventful and as they passed through the outer layers of the Earth's atmosphere, the shuttle's pilot, Captain Lucas Stanovsky, established laserline communications with the habitat.

"This is Control Center at Disney's World...we read you loud and clear, Captain. We're tracking you on visual, now...rendezvous is anticipated in twenty minutes."

"Roger, Control. We—" At that moment Stanovsky screamed, as an ear-splitting whine replaced the background crackle in his earphones. Almost simultaneously, a burning beam of tight, white light flashed across the bow of the shuttle, vaporizing a pencil-sized hole through the co-pilot's window—and the co-pilot.

As the stunned communications officer

in Disney's World shouted insanely into his microphone—"SHUTTLE THREE! You're under attack!"—a second lethal line of light slashed out from an undetectable source and caught the shuttle midship. It severed the comm-link cables, the comp-nav system and six people from their lives in milliseconds. Bodies and pieces of machinery went flying through the passenger compartment, as an attendant frantically tried to swim his way over to patch the hole in the side of the craft. Captain Stanovsky closed his suit, went on internal oxygen and fired his directional rockets desperately in an attempt to get the shuttle turned around. He succeeded. Miraculously, he was able to maneuver the now-ungainly giant through the re-entry and expended enough momentum to belly land the crippled craft in the south Atlantic—not far off the coast of Florida. The survivors were picked up by Air-Sea Rescue within minutes—a quick count showed 27 people either known dead or unaccounted for, including the Soviet and Rowandan representatives, the Chairman of the Board of Diverse Wonders, Inc., a top American presidential aide and the anchorperson from the UBC midnight news.

When the news got out, accusations and threats went flying across the globe. The U.S. blamed the Russians; the Russians blamed the U.S., China and Diverse Wonders; Diverse Wonders blamed all three nations, and while the cause of the disaster was still being investigated, armies were mobilized worldwide.... And the rhetoric continued and the tension became almost unbearable. Something had to give and would, very soon.

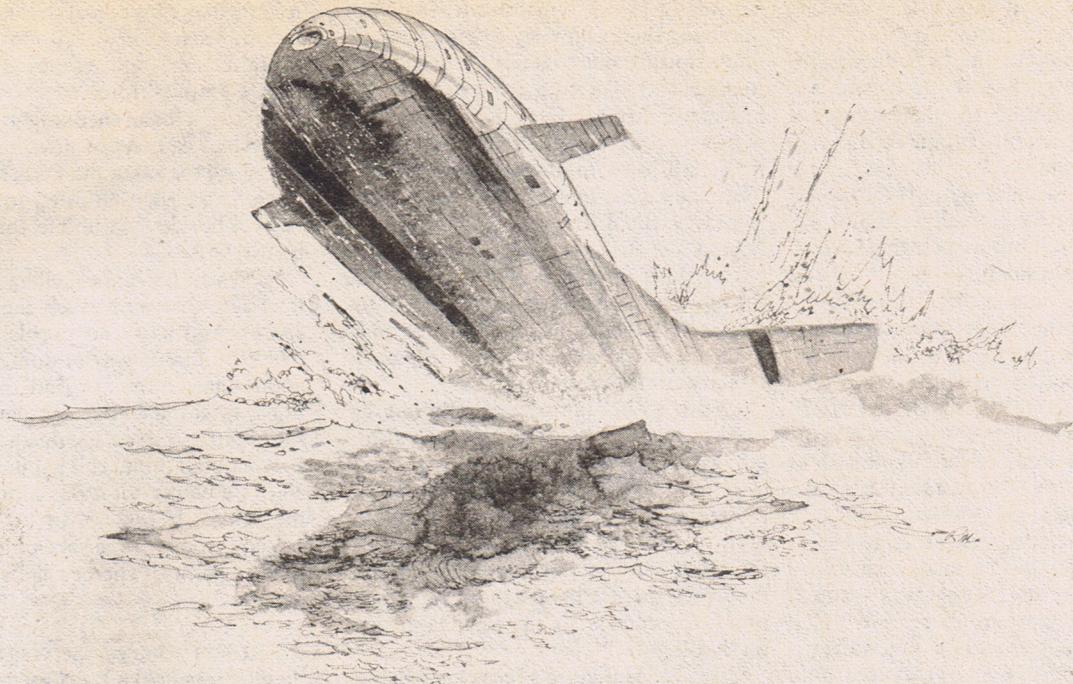
Freeman spent the next two days in close contact with the directors of Diverse Wonders, a nervous crew aboard the orbiting habitat and his friends in Washington (he and the Vice President had served together in the Aerospace Corps).

Everyone wanted to know what he thought had happened to the shuttle. Frustrated, he had to reply that he didn't know, but felt it was definitely not the result of a premeditated terrorist attack. That's what he feared most, for it would mean that Disney's World would be forced to close up shop. (He refused to accept the possibility that it might just also mean an all-out nuclear war.) Above all, he told them, keep calm. Don't panic.

But *panic* was not an accurate description of the situation—*rampant hysteria* comes much closer. The news media were on a holy crusade for truth, justice and the highest ratings in the history of the industry.

\* \* \*

On the morning of November 20, 1996, Freeman sat at the octagonal computer console in the Starlight Cafe and scanned the facsimile-news printouts. In sheer disbelief and growing horror, he read that, in the absence of any hard evidence, the



*"He expended enough momentum to belly land the crippled craft in the south Atlantic."*

news media had chosen a scapegoat.

Several minutes later he realized that he was standing in front of the central display screen with the crushed printout in his clenched right fist. Numbly, he flattened out the thin sheet of plastic-pape and stared again at the headline: GIANT HABITAT HELD RESPONSIBLE FOR SHUTTLE ATTACK. And right beneath that: MYSTERY LASERBLAST SAID TO ORIGINATE FROM DISNEY'S WORLD. And another: BLUEPRINTS REVEAL SECRET LASER CANNON ON DISNEY'S DEATHSTAR. It went on... and on....

The laserline on the comm-panel flashed as Freeman returned to the console to punch up the call. The worried face of Chad Jervil—now acting Chairman of the Board of Diverse Wonders, Inc.—filled the screen.

"Josh, tell me it isn't true. Just say those words and I'll launch libel suits against every one of those bloodsucking ghouls! Those filthy..." Freeman cut him short.

"Whoa! Slow down, Chad. Of course it isn't true. Why would we have turned a laser on that shuttle? It's the goddam height of stupidity to even..." he stopped as he saw the color drain from Jervil's face.

Jervil opened his mouth to say something but couldn't seem to get it out. Then... "You mean, you mean that the habitat *does* have laser cannon? And they *are* operational?"

Freeman was furious. "Of course we have the bloody things! It was no secret—I included the system design in the original

plans. They're here to protect the Park from meteorite swarms or orbiting junk hardware or armed attack.

"But the point is that they weren't used! Haven't ever been used! From all accounts, the shuttle was hit by something in low Earth orbit. They were still twenty minutes away from us, Chad. For god's sake..." Freeman's voice trailed off. Suddenly he felt the energy drain from his body. The whole affair was some strange, Kafka-esque nightmare. A terrible feeling of things-happening-out-of-control swept over him.

Jervil regained some of his composure—he was saying something. Freeman had missed the beginning: "...voted on it anyway, just to have all contingencies covered. And, based on the information you've just provided, I'd say it's operational!"

"What are you talking about, Chad? What contingency? *What* have you voted on.... Chad, just what the hell have you done?" Beads of sweat broke out on Freeman's forehead; his palms felt cold and wet. Jervil started slowly.

"Now look Josh, there's no need for you to come apart over this. We just felt that it would be best—image-wise and long-term investment-wise—to go low profile, if the situation warranted it. We're feeling a lot of heat. There are lots of crazy threats and accusations being thrown around down here—you don't know the half of it!"

"So we're opting for a more conservative approach... We'll put off opening the Park to tourists for a period of 2-5 years.... For further study and develop-

ment of additional safety features—for our transportation system, for one thing. But the science station will stay open, although—given the current state of world hysterics—we'll only take up scientists from the Western Alliance treaty countries. Until things cool down.

"You see, we're not asking you to shut down. Nobody wants to see a \$200 billion investment go down the drain! In fact, to protect that investment and insure the safety of the manufacturing and scientific facilities that will be in use, the U.S. government has graciously offered to send up a peace-keeping force. Immediately. Under the circumstances, we shall have to accept."

Freeman's face showed all the color and emotion of a weathered tombstone. "Chad," Freeman spoke in a dead voice, "your proposal is entirely unacceptable."

As Jervil started to respond, Freeman broke the connection.

\* \* \*

Immediately the phone flashed again. Freeman hesitated before answering and was relieved to see a friendly face. "Cris! How are you? I mean are you okay? You weren't shook up too much in the crash, I hope. Cris...what's happening?"

Cristobal McKenzie was at the edge of exhaustion, but her face was calm and her voice steady as she said, "Josh, things have come to a head. The President has okayed Diverse Wonders' request for protection..."

"Request!" Freeman exploded. "Why that irresponsible, lying sonova... Never mind that now. You've got to stop him from sending those troops! This isn't sup-

posed to be a *military* installation!"

Cris laughed. "You think *you're* upset! The Chinese have just called for an emergency meeting of the U.N. General Assembly...tonight! And the Russians have just threatened to place armed defense units at their own orbital construction sites immediately."

Freeman was silent as he thought furiously. "Look," he said finally. "I think I may have a way out of this mess that saves face and reinstates sanity."

"What if you were to offer the following proposal to the parties concerned: A resolution to be put forth by us in the General Assembly to place Disney's World under the protection of the United Nations. The U.N. then delegates care of its protectorate to a group of various member countries—whatever formula they care to work out. All of the habitat's facilities—educational, scientific, recreational and industrial—are made available to every member country—the underdeveloped nations to receive 'X' number of free tickets and 'X' percentage of the goods produced each year, according to some prearranged sliding scale."

"If a treaty could be worked out that would allow individual nations that possessed the technology to make use of other-worldly material toward the eventual goal of bettering the condition of humanity, then production could proceed with everyone being assured of getting their own proportionate slice of the pie. That should make everyone happy, particularly the Chinese. And with the habitat's protectorate status, the burden of responsibility is taken off of the United States—in return for a smaller, but guaranteed, annual profit. And we eliminate the possibility of an immediate military confrontation in space."

"Why Josh," Cris said, "I've never known you to dabble in politics before, but I guess you just can't keep a good systems-analyst down. I'm impressed."

Freeman flashed a grin. "Thanks. Now, if I can think of a way to convince the paranoids running Diverse Wonders that it's as safe for people to come up here as it is for soldiers...Cris, what happened on that flight?"

Cristobal McKenzie's face clouded and then suddenly cleared. "Josh, I honestly

picked up the source of the blast. I'll check it immediately. You get to the President's ear and sell him on the wisdom of my compromise plan—and get him to cancel that 'peace-keeping' force."

Cris tried for an encouraging smile. "I'll do what I can. As of now, the launch is scheduled for 6:00 a.m., EST, tomorrow."

The cold edge returned to Freeman's voice as he said, "I won't let them come on board, Cris."

"Do you remember telling me, a long time ago, that we had left the fun out of space? And kids and people too? Well, this World is my way of doing something about that. I frankly find that military thinking is dangerous for the continued life of our species on Earth, and I intend to keep it out of orbit. This habitat belongs to all of humanity—it is our commitment to the future. It will not be taken over by armed troops for the sake of any one nation's security. There will be trouble if they try."

\* \* \*

Freeman scanned the console for the time. It was 6:20 a.m., Eastern Standard Time, on the morning of November 21, 1996. The moment had finally come. He knew that the habitat's crew were at their assigned posts, awaiting his orders. Hopefully, there wouldn't be any. He had called all of them together the night before to explain the situation. All were dedicated to the remarkable project and to the idea that space habitation was the next logical step for mankind. They were a close-knit group of futurist pioneers and none had accepted his offer for safe passage to one of the other orbital stations or back to the Earth. They were in this together and would follow his lead. Freeman prayed that he wasn't leading them into Armageddon.

Turning his attention back to the console, Freeman opened a laserline channel to hail the onrushing military craft.

"This is Freeman, acting supervisor of Disney's World, calling Aerospace shuttlecraft. Please acknowledge." He waited nervously for a reply.

"Colonel Freeman, this is Captain Frank Lloyd Scott, you old Moondog! What are you up to now, Josh?"

Scott and Freeman had been close friends in the Corps but hadn't seen each other since they worked together on the construction of Moonbase One.

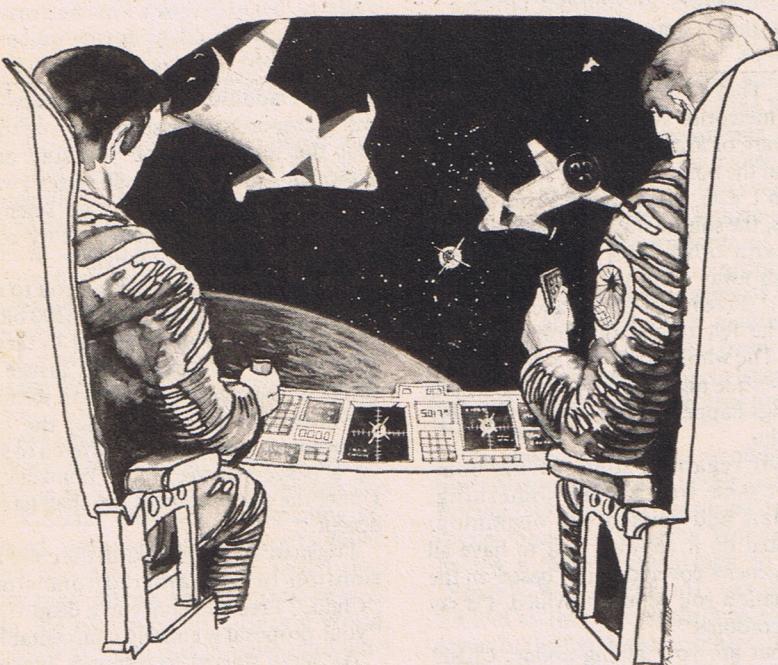
"Scotty! It's good to hear your sweet southern drawl again. Now, don't take this personally...but I'm afraid that I can't let you dock and come aboard."

"Don't tell me," Scott replied, "that your station's been hit by the Andromeda Strain."

"I'm not kidding, Scott. I want your two craft no closer than 5,000 meters. You know we can track you and you know that we have laser defenses."

Scott said, incredulously, "Son, you've gone and lost all of your marbles! You just

*(Continued on page 69)*



"The two craft, which had been closing fast on the habitat, started to slow."

Cris looked puzzled. "But why would the President offer to give up control of the profits on this national investment? Just because it gets the heat off your back?"

"Ah," Freeman smiled, "you forgot one thing. Right now the mining crew on Moonbase One is sitting on their hands, pending the outcome of the 'extraterrestrial exploitation' treaty talks. Disney's World may be capable of manufacturing solar power satellites and interplanetary vehicles, but why bother if all of the raw material has to be blasted up from Earth?"

don't know what happened, but there's a possibility that you do."

"What do you mean?"

"Tell me Josh, that marvelous optical telescope of yours is operational, isn't it?"

"Yes," Freeman conceded, not following her line of reason.

"Do you keep a continuous record of what part of the sky it is being focused on?"

Now Freeman understood. "Yes! Why didn't I think of this? It's a long shot, but it is possible that part of the system was scanning the shuttle's flight and may have



A Conversation with

## STEVEN SPIELBERG

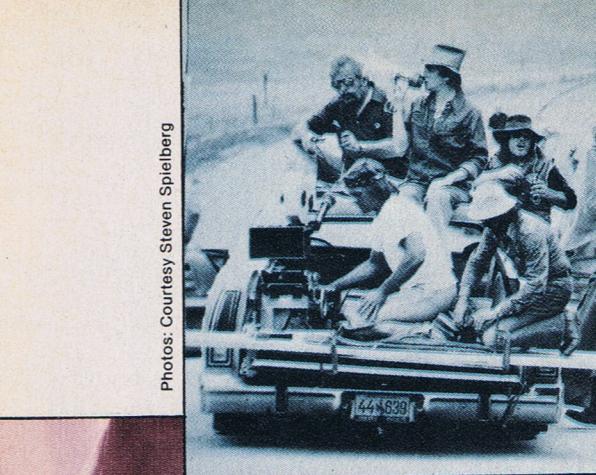
*If SF enthusiasts thought celluloid hero Roy Neary had problems finding the UFOs in *Close Encounters*, they should have witnessed the hurdles Steven Spielberg had to clear in order to get the mammoth movie off the ground! In this exclusive interview, the talented writer-director reveals the behind-the-scenes story of the ultimate UFO screen saga.*

### The Road To "CE3K"

By STEVE SWIRES

**B**y now, *Close Encounters Of The Third Kind* has passed into film history, touted as a landmark of the science fiction genre. Its opulent special effects have thrilled millions of moviegoers. The novelization of the film has sold hundreds of thousands of hardcover and paperback copies. A long-playing soundtrack album soared into the nation's top ten within weeks of its release. What very few SF buffs realize, however, is that the mammoth movie hit almost never got off the ground. As a matter of fact, according to writer-director Steven Spielberg, there was a time when he "wanted to give up the notion of making *anything* having to do with UFOs."

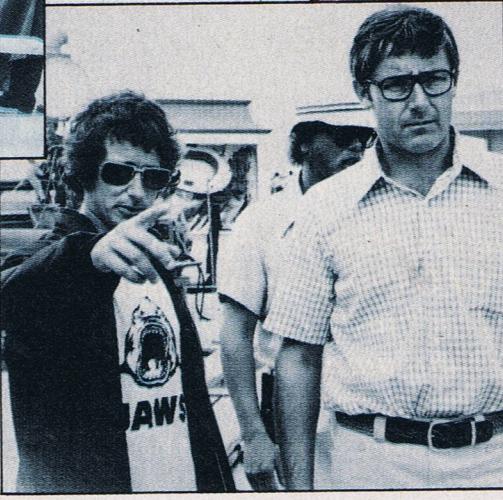
Seated casually in his Hollywood office, the youthful movie-maker candidly recalls the project's shaky start. "In 1972," he says, "I sat down to write *Close Encounters*. My initial approach was to take a career Air Force officer, a character I named Van Owen, and place him in a position of UFO debunker in the interest of the national security. In my original story as Van Owen was returning home from a successful debunking operation, he had a sudden and personal encounter of the second kind. This was to change his life. His obsession to not only define but to relive the experience would lead him into the bowels of the cover up; Van Owen becoming a willful accomplice on the outside chance of becoming the prime guinea pig in the ultimate third act set piece. A good



The road to *CE3K* in Wyoming. Top left to right: Sound mixer Geno Cantamesa, Spielberg, Asst. Director Chuck Myers, Jim Lynn of Wardrobe. Bottom: Dir. of photography Vilmos Zsigmond and Nick McLean.



A shot of the director on location filming *CE3K*.



Steven with *Jaws*' author Peter Benchley.



A big hand for *Jaws*.

deal of the story had him closing the account of his terrestrial existence while project scientists readied him for the journey.

"I wrote the story and registered it with the Writers' Guild of America. Then, along came *Jaws*." It was while Spielberg was in the midst of filming his world-renowned shark scare that Columbia Pictures showed an interest in his saucerfest to-be. "I wanted to get a screenplay out quickly for no other reason than to keep interest in *Close Encounters* up at Columbia Pictures. You should remember that this was before *Jaws* was released. I was still dealing from a weak power base because my first feature, *The Sugarland Express*, hadn't made any money. Nobody knew if *Jaws* would be successful enough to give me my third chance."

It was at this point that *CE3K* began running into snags. "Julia and Michael Phillips, the producers of *Close Encounters*, suggested we contract Paul Shadrake, a writer friend of theirs. (Ed. note: Shadrake is the author of *Taxi Driver*, *Obsession* and *Blue Collar*.) I sat down with Paul and fed him my story infinitus. Paul simply sat down at a typewriter and, within weeks, returned my story to me in the form of many convoluted pages consisting mostly of 1,000 word monologues. I remember reading that script and wanting to close the account of my interest in UFOs. The Air Force debunker angle had to go and so did Paul Shadrake."

The bad taste left from the original draft, however, was not destined to subside after Shadrake's departure. When the writer learned that he was not being offered any screen credit for his work, he took the matter to the Writer's Guild of

America, a move which stunned Spielberg. "I remember voicing my surprise when Shadrake insisted on arbitrating for a screenplay credit *two years later*. No one could talk him out of it. Anyway, the Writers' Guild arbitration committee read the scripts and awarded me sole credit for *Close Encounters* based on the five drafts I had written plus my original treatment (the latter being the basis for Paul's draft). Now that *Close Encounters* is such a big hit, I understand that Shadrake is running around town thumbing his suspenders. It surprises me that Shadrake would slink after someone else's success by vividly inflating his imagined contributions."

With Shadrake's dismissal from the original *CE3K* project, Spielberg was faced with the enormous task of scripting the film himself. He relied on a host of talented friends for both support and inspiration. "John Hill worked with me on another draft of the film before I shut myself up to write alone," Spielberg states. "That's when the movie everyone has seen *really* began. A year later, Jerry Belson spent a week with me in New York while I took advantage of his great sense of humor in trying to lighten the Roy Neary character. Hal Barwood and Matthew Robbins spent four grueling days with me in designing the kidnapping of Barry. There were also grips, electricians, camera crews, my producers and all the actors who made contributions to the movie during the production. In case anyone's interested, I'm still writing *CE3K* to this day."

But putting together a working screenplay was just one of the seemingly infinite amount of hurdles Spielberg was called upon to clear in order to launch *Close Encounters*.

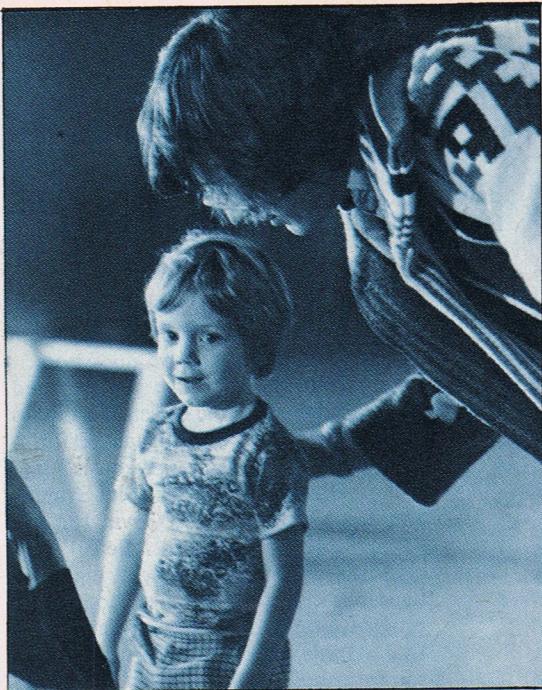
*counters*. As things progressed, it became clear that the film was so physically vast in scope that it would have discouraged many a less ambitious and imaginative filmmaker. Spielberg never doubted his ability to control the myriad of variables involved, however. It was second nature.

"My appetite has always been bigger than my stomach," he confesses. "I've always been able to pretty much visualize the unshootable and then, when I've had to face the practical necessity of what could be done for the budget and for the schedule, compromising to a level that perhaps is still pretty far-out but not exactly the goal that I had shot for. And yet, to compromise is interesting. I don't think I've ever compromised below the level of what would be interesting to moviegoers."

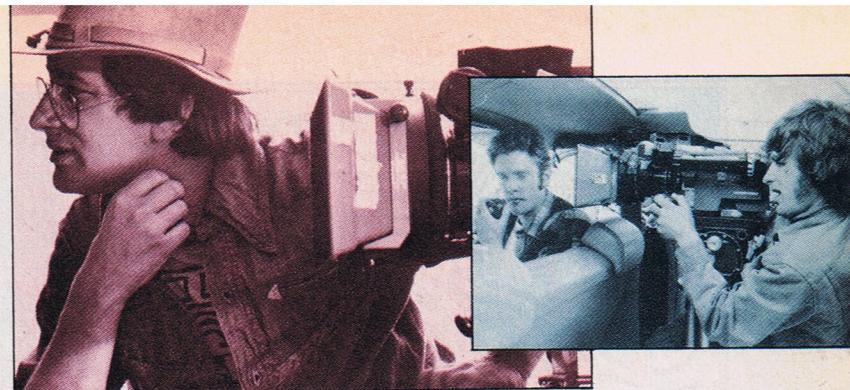
One of the possible areas of compromise involved the special visual effects. Whereas in a film such as *Star Wars* the effects may have overshadowed the ideas, in *Close Encounters* the effects were the *visual representations* of the ideas. Therefore, even before hiring master-craftsman Doug Trumbull, Spielberg decided to retain control over the highly technical areas, resulting in his taking an additional screen credit for "visual effects concepts." In his estimation of the division of labor, Spielberg designed and directed the effects and Trumbull engineered and supervised them.

"I pretty much ran an autocratic concept shop," he says. "All the ideas on the screen were visual concepts that I had achieved first on paper, and it was just a matter of finding the right people who could engineer these visualizations in two dimensions. If it hadn't worked out with

Left: On location in India, director Spielberg deftly shows extras exactly where the UFOs originate.



Spielberg coaches *CE3K*'s alien prototype.



Above left: *CE3K* shoot, right; filming *Sugarland Express*.



Steven's hot line.



Spielberg and Dreyfuss during *Jaws*.

Doug, I would have gone right down the line until I found somebody who could engineer these effects.

"On a 'prefabricated' basis, when Doug became involved, the blueprints had already been drawn up, a lot of the spaceship designs had already been roughed in and colored. He came aboard with the modules stacked up against the wall, but I didn't quite know how to hinge them together, what tools to use, how to use the welding torch, so to speak."

Spielberg doesn't underrate the enormity of Trumbull's contributions, however. "At the same time, there were other things that I had drafted but had no idea even how to create, like the clouds. I had visualized the sequence where clouds materialized in the lower atmosphere, but had no idea how to do it. I figured I would use smoke, like they did in *Hell's Angels*, with dry ice in a 45-degree room. That would have taken forever, so Doug's genius paid off when he came up with the water tank and the saline solution with the boundary layers and that paint formula.

"In another dilemma, I told Doug that the outboard lighting of our UFOs should breathe and be scintillating; otherwise vibrant light can appear dead to the naked eye. Doug said 'give me a few days,' and in the next batch of optical effects the lights took on a subtle life that wasn't there before."

In this crucial area of collaboration the two men managed to complement each other's strengths perfectly, thus avoiding all possible ego clashes. "At times, Doug suggested improvements on my ideas that sometimes inspired me to higher levels of imagination," he marvels.

Special effects craftsman Carlo Ram-

baldi also impressed Spielberg during the *CE3K* project. After Carlo's disastrous involvement with the *King Kong* remake, many movie buffs were shocked when Spielberg announced that Rambaldi would be responsible for creating *Encounters*' resident aliens. Spielberg never had second thoughts about his choice.

"I heard all the horror stories from the *King Kong* group," he relates. "I met with Carlo personally and saw his portfolio of all the films he's done in Rome over the last fifteen years. The man is a remarkable physical makeup artist and miniature manipulator. I think he received a bum rap for *King Kong*. After spending months working with this guy, I think people have gotten the wrong idea from stories being told out of school."

"We put our heads together and Carlo did a few sketches for me. I wanted this embryonic creature, when it smiled, to look like the ancient lama from *Lost Horizon*. I wanted this person to age from minus to a thousand years. Carlo just took that concept and developed a beatific star kid. I gave him a picture of Cary Guffey and said that I wanted the barest resemblance to that boy, whom, of course, I had already cast. Carlo went off with the picture of Cary and several fetus concepts and created this marvelous space youngster."

Handling well planned concepts was one thing, but dealing with the thousands of visual and mechanical intangibles that unexpectedly showed up day to day proved an enormous responsibility. Unlike many filmmakers, Spielberg has not collected a catalogue of these sometimes amusing problems with often equally amusing answers. "The thing is," he

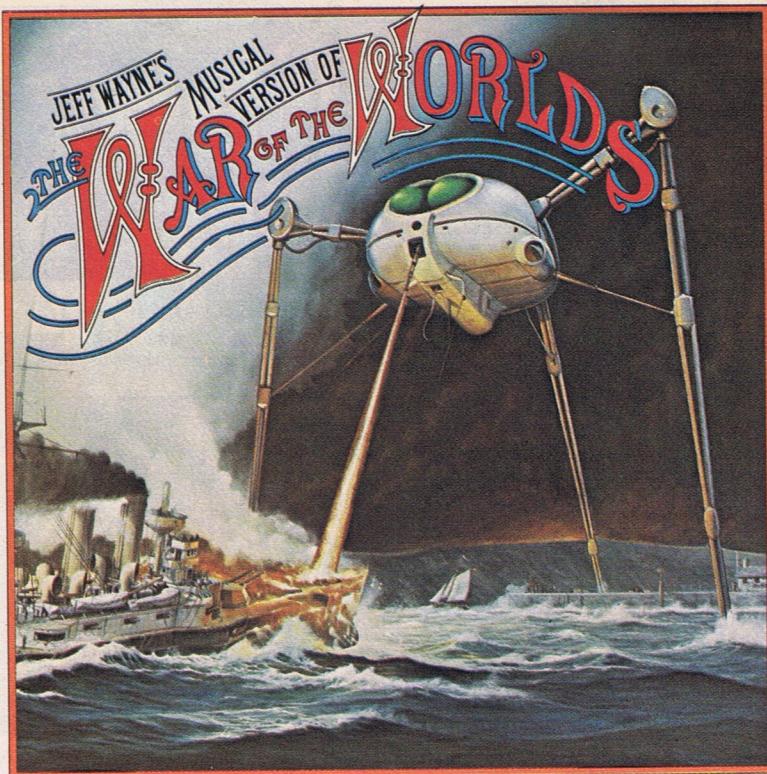
states, "every day something funny happens. When I'm directing a movie, I sometimes feel like Dorothy in *The Wizard Of Oz* caught in a twister, only I never get dumped out in Nirvana. I'm always up there, and everything around me is a laughing circus. Everybody is having a great time and I'm sitting there scratching my head, wondering: 'How am I going to do those things?'

"I don't have the best sense of humor when I'm making a film. I'm sure any of the actors and technicians can tell you all sorts of funny stories. Except for the comedy that I intended for *Close Encounters*, the funniest thing I found about the movie was Doug coming back to me every few months saying his budget was going up another \$250,000 and I should go tell Columbia. I think I laughed more about that than anything else, although I must say that without Doug I don't think it would have been the same film."

As it turns out, some science-fiction dissidents wish that *CE3K* wasn't the same film. In fantasy film circles, *Close Encounters* has instigated a wave of polarized reaction totally eclipsing *Star Wars'* criticisms. There seems to be no middle ground—people either love it or hate it. As it turns out, this is precisely the response Spielberg was aiming for.

"I was hoping it would provoke just such an emotional audience reaction," he reflects. "The one thing moviemakers don't want to do is create passionate works that are received with apathy. That's more terrifying than not making any money at the box office or getting bad reviews. I felt I had hit pay dirt in fantasy film circles. In the more commercial,

(Continued on page 62)



## The Waxing of The War of The Worlds

*H.G. Wells' durable Martians are back! After successfully conquering the kingdoms of radio and motion pictures, the alien attackers are now turning their attention to the realm of pop music. Can Richard Burton and veterans of The Moody Blues, Thin Lizzy and The Elton John Band stop the invaders this time out? Who knows...but at least you can dance to it.*

By LOUIS BROADHURST

The steadfast British voice is firm, resolved. "Two luminous, disc-like eyes appeared above the rim," it whispers. "A huge, rounded bulk, larger than a bear, rose up slowly, glistening like wet leather. Its lipless mouth quivered and slavered—and snake-like tentacles writhed as the clumsy body heaved and pulsated. A few young men crept closer to the pit. A tall funnel rose, then an invisible ray of heat leapt from man to man and there was a bright glare, as each was instantly turned to fire." The narrator pauses to

reflect on the horror of the heat ray.

A familiar voice. A familiar story. The Martians have landed again and, this time out, Richard Burton is an eyewitness!

Burton acts as narrator-journalist on the new Columbia Records double album, *The War Of The Worlds*. Mixing narration with rock musicianship, *The War Of The Worlds* is the first musical version of H.G. Wells' classic science-fiction tale ever attempted. Released earlier this summer in a multi-media marketing push, the album is the work of rock producer Jeff Wayne, a long-time SF buff.

Wayne, who achieved fame in Europe

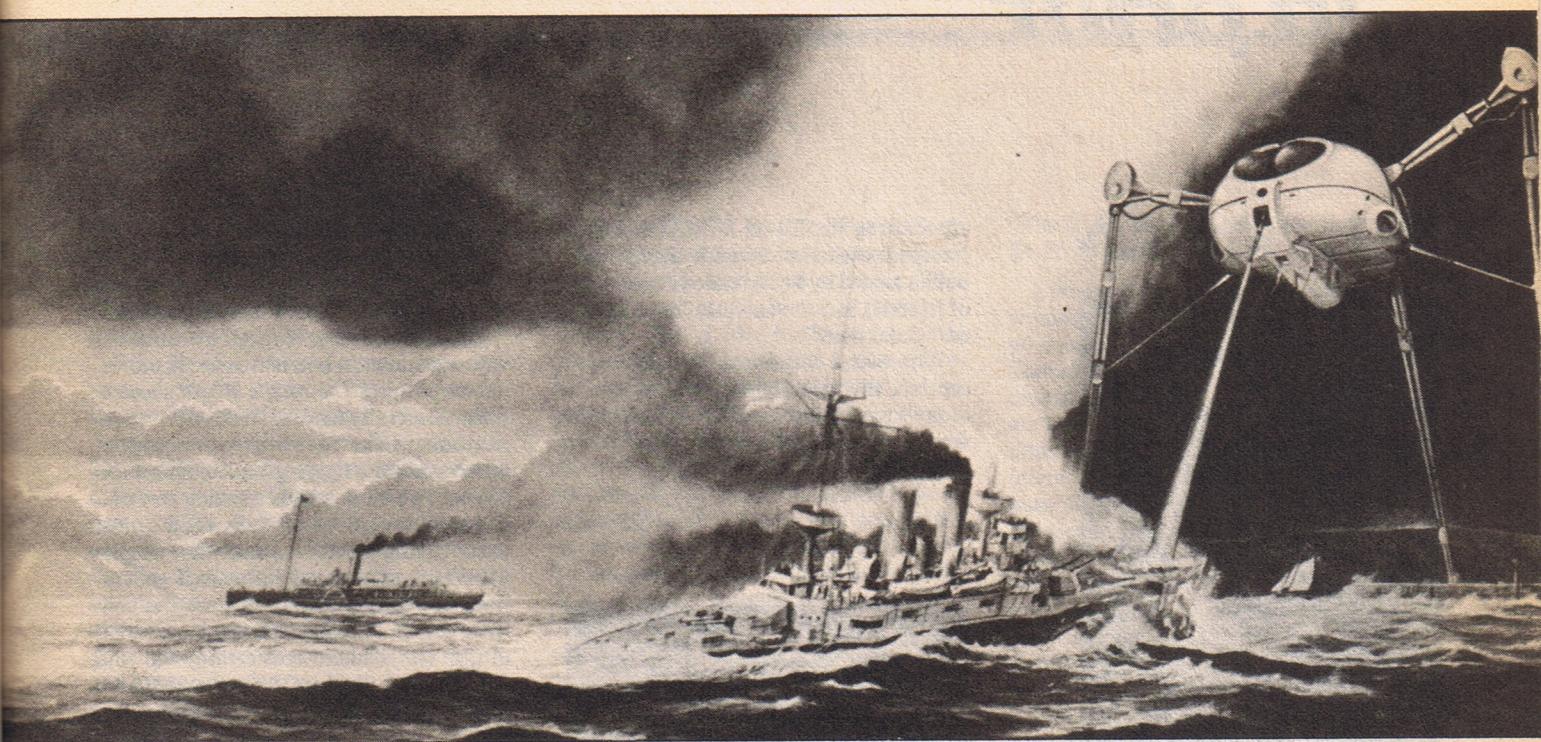
as the producer-arranger of gold record-winning pop star David Essex, came up with the idea for the Wells adaptation a few years ago and has spent the past twenty-four months putting it all together in a forty-eight track studio in London. It's the first of a proposed series of musical adventures by Jeff and his father Jerry Wayne and is an impressive debut indeed.

*The War Of The Worlds* stars the aforementioned Burton, whose narration provides the album's dramatic plot-line (based directly on the original book). Breaking up the narrative passages and waves of chilling sound effects are a series of rock tunes and instrumentals performed by some of contemporary music's biggest superstars. Thin Lizzy's Phil Lynott and Rock Follies' Julie Covington are "Parson Nathaniel" and "Beth," two crooning victims of the menacing Martians. Justin Hayward of the Moody Blues provides a touch of balladeering and Manfred Mann's Earth Band's Chris Thompson furnishes some harsh rock vocalizing. Rounding things out are David Essex as a trapped infantryman and an omniscient back-up band featuring Chris (Sharks) Spedding on guitar, Jo (Kiki Dee, Elton John) Partridge on guitar, Herbie Flowers on bass, Ken Freeman on keyboards and synthesizers, Barry Morgan on drums and percussionists Barry DaSouza, Roy Jones and Ray Cooper, and George Fenton on zither.

Accompanying the record is a colorful album package featuring a 16-page booklet which includes the LP script, song lyrics and eight original full-color paintings based on the Wells SF thriller executed by artists Michael Trim, Peter Goodfellow and Geoff Taylor.

CBS unveiled the package with an initial flourish by presenting a coast-to-coast ninety-minute broadcast of *The War Of The Worlds* (shades of Orson Welles!) on over 150 radio stations. And adding extra clout to the current bout of Martian madness is a special five-minute animated short featuring some of the LP's highlights. Now making the rounds in motion picture theaters across the country, the film was put together by Neo-Plastics in Los Angeles and offers a visual collage of the Wells au go-go goings on concocted by Wayne for the record.

With both a radio broadcast and an animated epic bolstering the release of the innovative *War Of The Worlds* long player, it is clear that Jeff Wayne is serious about his science-fiction rock adventure. What further plans does Wayne have for his sound SF exploits? Well, no one is saying for sure but, word from London has it that quite a few people are interested in a live stage presentation of the Wells story...It just goes to show, no matter how hard you try, you can't keep a good Martian down.



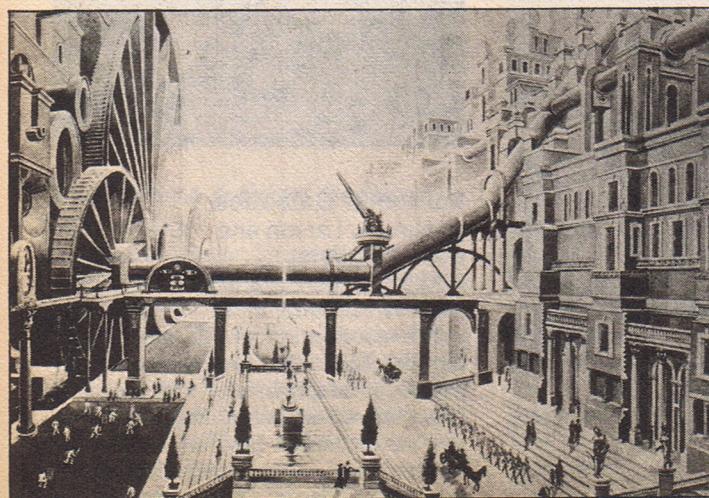
Michael Trim paints the *Thunder Child*...an ill-fated ship attacked by the ruthless invaders from outer space.



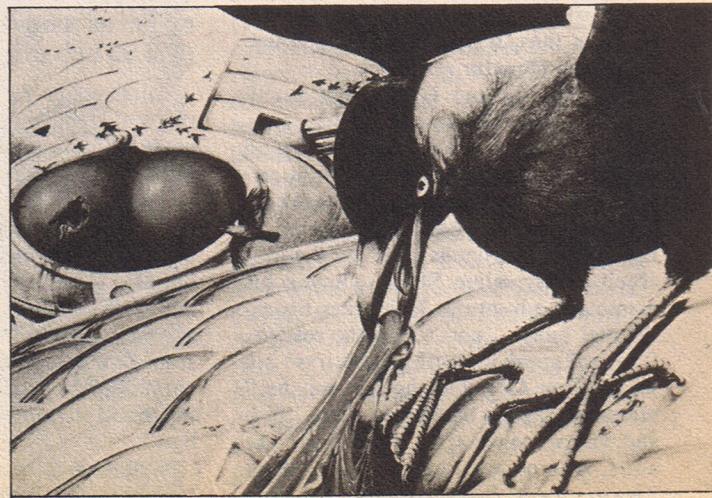
Artist Peter Goodfellow's painting of the initial Martian landing.



A detail from Geoff Taylor's painting of Martian-caused mass panic.



Artist Taylor paints a "brave new world," man's hope for the future.



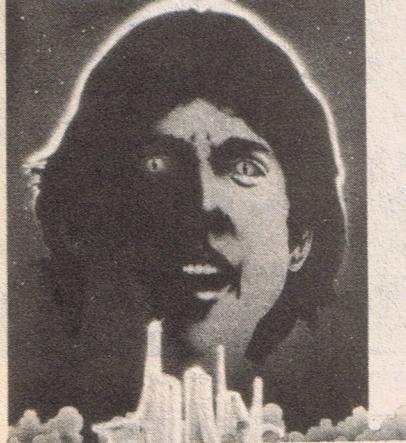
Geoff Taylor's version of the dead Martians being attacked by birds.

## URSULA K. LE GUIN

Author of *Orsinian Tales*

### City of Illusions

With a New Introduction by the Author



#### City Of Illusions

by Ursula K. Le Guin  
(\$8.95 in hardcover  
from Harper and Row)

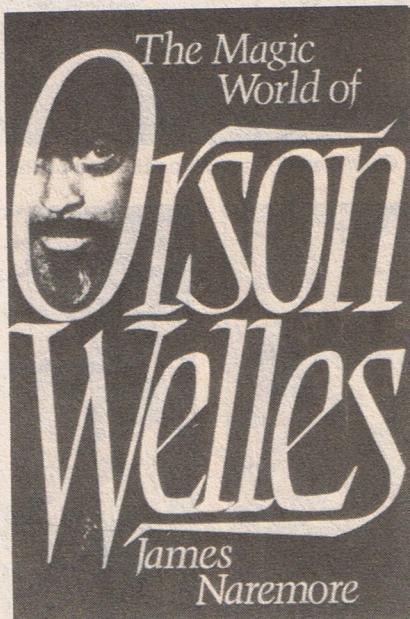
In the mid-sixties, Ursula K. Le Guin set out to write a story entitled *The Two-Minded Man*. What eventually resulted was the 1967 novel *City Of Illusions*. Since the book's initial appearance, Le Guin has gone on to become one of SF's most respected authors, winning both the coveted Hugo and Nebula awards. At this point, Harper and Row has seen fit to revitalize the eleven-year-old novel and, with a new introduction by the author, present it in hardcover. Although this move will undoubtedly thrill die-hard Le Guin fans, it may cause some tough literary sledding for novices.

*City Of Illusions* is basically an SF "quest" tale, replete with timely symbolism and appropriately updated mythology. The protagonist Falk (a cat-eyed stranger with no memory to speak of) goes off in search of his origin in the city of Es Toch, a metropolis ruled by the evil, albeit crafty, alien Shing. During his mammoth adventure, Falk takes his existential lumps...and so do the readers. "You will speak the truth and the truth will set you free. Or not as the case may be," utters one sage to the hapless hero. "Fish and visitors stink after three days," he adds, borrowing heavily from Mark Twain. Falk finds himself looking "through a glass darkly." (Presumably

after eating his fill of *Wild Strawberries* stamped with the *Seventh Seal*.) Nasty bullies are led by a chap called Angerd (son of Madd?) and the universal lingo is tagged "Galaktika."

With over a decade elapsing since its inception, the value of *City Of Illusions* to today's readership is mainly historical. It's very interesting to see where Ursula Le Guin has traveled from.

Ed Naha



**The Magic World  
Of Orson Welles**  
by James Naremore  
(\$15.95 in hardcover from Oxford)

On October 31, 1938, Orson Welles threw a sizable portion of America into a panic with his startling radio adaption of H.G. Wells' *War Of The Worlds*. In 1941, he revolutionized the movie industry with his classic *Citizen Kane*; a film notorious not just for its unique elements of style but also for its use of technical processes not often seen in live-action films. Hailed as a young genius in his early years, Welles somehow evolved into a commercial pariah in Hollywood circles. This fascinating book attempts to document why and how.

Welles, a master craftsman who brought both Shakespeare and Kafka to the screen, who mixed movie magic with sheer chicanery on numerous occasions—and who brought his Olympian presence as an actor to over fifty films—is portrayed in the book as being one of the world's last "romantics," a misunderstood artist whose genius cost him his career. A movie-maven's must, *The Magic World* successfully dissects several of Welles' most infamous works in terms of dialogue, camera angles, lighting and biographical intent. The book stands as being sort of a literary X-ray of one of Hollywood's most trend-setting giants. A giant who, despite his erratic career, has influenced generations of young directors, writers and bellissime actors. Anyone interested in a career in film (or celluloid frustration) will find *The Magic World Of Orson Welles* a mesmerizing tale of thwarted artistry.

Charles Bogle



**Battlestar Galactica**  
by Glen A. Larson and  
Robert Thurston  
(\$2.25 in paperback from  
Berkley/Putnam)

The novelization of the epic SF-TV show, *Galactica*, has succeeded where the paperback adaptions of *Star Wars* and *Close Encounters* failed: it manages to inject the excitement of space battles, the fascination of interpersonal relations and the eccentricities of extraterrestrial aliens into the written form. While the book ver-

sions of last year's big SF movies suffer in comparison to their film incarnations, *Battlestar Galactica* is destined to be enjoyed and referred to as a worthy companion to its visual counterpart.

The novel's success comes, in equal parts, from the smooth, tight, unpretentious writing style, the wealth of character development, and the over-all length. It is 244 tightly-packed pages of highly visual action, well plotted intrigue, and involving personalities. Although the leading characters—Commander Adama, Lieutenants Apollo, Starbuck, and Boomer, newsperson Serina, and corrupt Sire Uri—are essentially stereotyped clichés, the authors go to great lengths to add literary depth and human dimensions, that, for the most part, work.

Richard Meyers



**DRAGONFLAME**  
& Other Bedtime Nightmares

**Don McGregor**

#### Dragonflame & Other Bedtime Nightmares

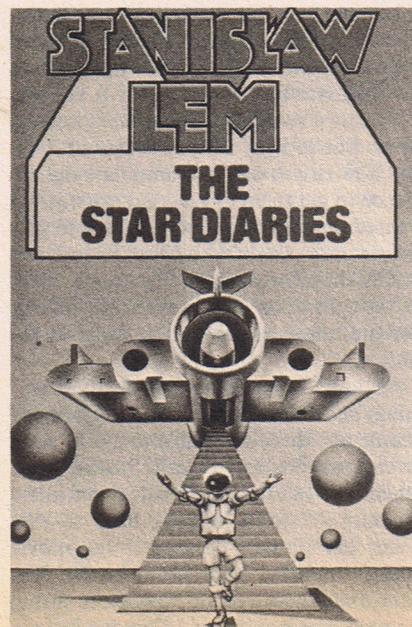
By Don McGregor, Illustrated by Paul Gulacy (\$5.00 in paperback from Fictioneer Books, Lakemont, Ga. 30552)

This is the first book of stories by a veteran writer. That may sound odd: if he's a veteran, why is this his first book? For 7 years, Don McGregor has been one of the most brilliant and controversial writers in the field of comic books. He is the author of a series that many consider to be one of the finest SF comics ever

done: *War Of The Worlds*. That book no longer exists, and Don has gone on to new projects; new worlds to conquer. This book of prose stories is one of those new projects, and if Mr. McGregor has not conquered the field of prose fiction entirely, he's carved out a large piece of the territory and made it his own.

*Dragonflame* contains a superhero—of a sort. It has SF and fantasy, but not what you might expect from a comic-book writer. It has love stories—but none of the stories are that easily categorizable. And it's not that McGregor simply adds a twist to an ordinary formula story, the way a bartender adds a twist of lemon—the stories in *Dragonflame* are like redolent, powerful mixed drinks. The title story puts a "masked avenger of the night" (like none you've ever met before) in a situation of sudden violence and psychic pain. The story is an urban nightmare that has as much impact as, say, Harlan Ellison's *The Whimper of Whipped Dogs*. There is *The Play It Again Sam Casablanca Blues*, a very special love story; and there is an utterly breathtaking, indescribable tour-de-force called *Bernie Chojnacki and the Taxi Drive to Oblivion and Beyond*. The book is, in all, tender, savage, brutal, lyrical, unforgettable—and unavailable in bookstores. You can get it, and its upcoming sequel *Dragonflame: Carnage and Crushed Carnations* by mail from Fictioneer Books. By all means do.

Peter B. Gillis



#### The Star Diaries by Stanislaw Lem \$1.75 in paperback from Avon Books

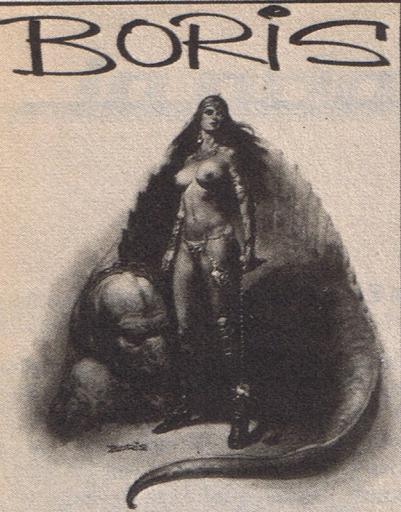
Living and creating in a communist country is no bed of roses. Especially if your vision is as satiric and surreal as Stanislaw Lem's. For one thing, your writing has to be crafted in such a way that no glimmer of insult is reflected toward the State—or else you may find no publisher interested in your work. For another, you may find what you felt was a completely innocent story translated into incomprehensible pablum. Finally you have to be careful who your friends are. Guilt by association is commonplace in Poland—where Lem works—so if your translator suddenly becomes suspect you may find your royalty payments lacking.

Even with this paranoid way of life, Lem has managed to reach an international audience of millions, making his brand of fanciful parables the best-selling SF in the world. In the United States six Seabury Press hardcovers and five Avon Paperbacks supply his growing stateside audience with all the whimsy, humor, satire, and incisive morality tales they can handle.

*The Star Diaries* is Lem's latest American softcover, an oddball odyssey featuring the popular recurring astronaut Ijon Tichy, who zips around the known (and unknown) Universe, nonchalantly wreaking havoc everywhere in time and space. Cruising in the vicinity of Betelgeuse on his seventh voyage he meets himself, then continues multiplying in a time loop until an Ijon election committee, a Tichy nominating committee and an Ijon Tichy committee for new business is set up. Then, in his search for Hridipidagnit-tusuoayomojorfnagrolliskipwakabec-copyxlbepurz, a.k.a. Master Oh, on the planet Fatamasma, he is imprisoned for not being underwater in a city where airbreathers exist in six feet of water and live limitless roles.

This is just a hint of the wonders to be found in the twelve voyages included in this expanded edition. Michael Kandel has translated the work from Polish with all the eccentricity and social relevance intact, making for a delightful read and worthy company to Lem's previous Tichy adventure, *The Futurological Congress*. Everyone from the major literary critics to the biggest names in SF knows and loves Lem's work. If you don't, *The Star Diaries* is a good place to start.

Ricky Moocher



## THE BORIS BOOK

For Boris fans, collectors and art enthusiasts, FUTURE has arranged for a limited quantity of a beautiful special edition magazine featuring the sketches and paintings of this talented artist. The book includes an interview with Boris, a complete index to his book covers and posters, photos of Boris posing, his family, his studio, many of his original prose-photos, and a superb collection of black-and-white reproductions of his paintings, original pen and ink sketches, book and comic covers, and even some of his early advertising art, greeting cards, etc. With a full-cover cover, glossy paper, 52 pages, 8½" x 11" format, this special book has a very limited press run and will not be mass-distributed to regular bookstores. Order your copy today, directly from FUTURE—only \$5.00 each, plus postage and packing.

## COLLECTORS:

A few remaining copies of the 1978 Tarzan Calendar are still available. This features 12 glorious full-color paintings by Boris, on large format, glossy paper. While the present supply lasts—\$4.95 each, plus 90¢ postage.

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## STEVEN SPIELBERG

(Continued from page 57)

general audience circles the film was pretty much openly received, but in the fantasy circles, it just delights me to know it's created so much controversy."

It's also stirred up a healthy amount of controversy with mainstream film critics, who are notorious for the condescending attitude they hold for science-fiction films. Most of their objections center around what they consider enormous gaps in the storyline. One writer, Ernest Lehman (who's written three screenplays for Hitchcock), enumerated many of these complaints in the April 1978 issue of *American Film* magazine. Much of his criticism focused on what he saw as Spielberg's disregard for logical motivations for characters and events, in favor of attention-getting directorial flourishes.

Spielberg's response to these charges is equally representative of his attitude towards much of the anti-*Encounters* sentiment present today. "Ernest Lehman drew his criticism without a heart," he says. "He's a thinking man's scribe and pretty much didn't have an emotional response when he was watching the movie. He had his slide rule, smear glass and graduated cylinder out. He took the film in the spirit in which he intended to take it. I'm certain Mr. Lehman would be right at home at the Milton Bradley Company designing board games."

It's this "emotional response" that is Spielberg's chief concern in *CE3K*. It's a response that requires the viewers to participate in the film, to show faith in the overall chain of events. It's a response that Spielberg worked on from the very beginning of the project. "You must not go into the film expecting a free ride. It's something that you have to pay for emotionally and also with a little gray matter."

Spielberg's noble intention of making his audience a working part of *CE3K* was a risky one from the outset. Many moviegoers today fully expect a filmmaker to tell them *everything* on the screen, reducing the audience's role to that of a voyeur.

"I conceived *Close Encounters* before *Jaws*. But in light of the success of *Jaws* and how easy it was to manipulate the audience to get them to respond exactly as I wanted them to, I sincerely wanted to give viewers more credit with *Close Encounters* and let their imagination fill in what might be thought of as gaps in the story-telling. For me, there are no gaping holes in the picture.

"I don't like to publicly justify everything, because I think the vast majority of people out there were able to fill in what certain sophisticates call 'holes,' and others just call 'room for emotional interpretation.' I keep harping back to that word 'emotional,' because if the movie doesn't capture your heart in the first hour, then there's really no sense in sitting through the second hour. Then it's like go-

ing to Laserium and listening to the music and watching the light show."

Some of the explanatory footage was actually shot, Spielberg reveals, but never made its way into the release print. "That's what I call the 'Death Of A Salesman' footage," he explains. "It's sitting in my house and is going to sit there until I decide what to do with it."

Television may provide the natural outlet. "There's about an hour of real good material left. When the film sells to television, I probably will do what Francis Coppola did with *The Godfather* and expand the 2-hour and 14-minute version *Close Encounters* into a 3-hour and 10-minute version. I'd love to show it to Ernest Lehman."

Despite the acclaim garnered by his newest film, wunderkind Steven takes a fairly pragmatic view of his work. "In *Jaws*, as in *Close Encounters*, I didn't hit the ultimate mark. In the 'scream and leap' department, I think I hit about an 85 with *Jaws*, and with *Close Encounters* about a 70.

"I'm rating *Jaws* on the basis of making people leap out of their chairs and spill their popcorn. In comparing the two films I think I succeeded better on that level with *Jaws*. With *Close Encounters*, I pretty much shot for the spiral nebula and kind of grazed past Pluto. I'm terrifically proud of *Close Encounters*. It's just that my original script and some of the original concepts were more daring, perhaps more interdimensional. I didn't follow through on them because I'd still be shooting now, and the budget would not be \$19 million, but up to about \$33 million. As a matter of fact, I hope to do in the sequel to *Close Encounters*, all the things I didn't do in the original."

That sequel has been the subject of much conjecture and even the talented writer-director isn't sure what it will contain. "I'm definitely committed to write and produce it. Whether I direct it or not is up in the air. I want to direct it, but I have a schedule that's not going to let me off for about a year-and-a-half. I want to get it off the ground as soon as I possibly can. I'd like to start shooting next June, to have it in theaters in the summer of 1980.

"I'm pretty much opposed to sequels in theory, but I designed *Close Encounters* with a lot of question marks and I want to treat the sequel with a lot of exclamation points. In a way I'm more anxious to get involved in this sequel than I've been with any other film. But I don't know if I'm going to have the time. I'd hate to put it off for three or four years."

Whether Steven Spielberg engages in a *Close Encounter Of The Fourth Kind* or not, the fact remains that the talented science-fiction fanatic and multi-faceted movie maker is by far the busiest young talent in Hollywood at present. As of this writing, he has almost as many projects lined up as John Travolta...a fact which Spielberg regards with pride: "And I can't dance, either!"

# The Great 1951 Space Program



In 1951, *Collier's* magazine brought together a handful of the nation's top space experts to help plan a series of feature articles on interplanetary travel. Combining present-day fact with futuristic dreaming, they concocted a space program that proved far ahead of its time. NASA has yet to equal the glorious visions of von Braun, Haber, Ley and some of the most visionary scientists ever gathered in one room.

By RON MILLER

During the early 1950s, when the world at large was totally Earth-bound and worrying about the Cold War, the length of Frank Sinatra's hair, sneaky Communists hiding in the closet and the specter of Korea, ethereal astronauts were already orbiting the Earth in a space station! Well, they weren't *really* up there, but according to the editorial staff at *Collier's* magazine, they *should* have been.

In the opinion of *Collier's*, the United States could indeed have had an artificial manned space station in orbit by 1963 and a 50-man expedition to the Moon climbing craters by 1964. Today, glancing back at the magazine's embryonic space series and the trio of books it spawned, one is totally convinced that had *Collier's* team of experts been given the mere \$4 billion they said was required, they could have produced fleets of giant swept-ring spacecraft, launched a 250-foot-diameter space wheel and assembled a mass lunar landing with

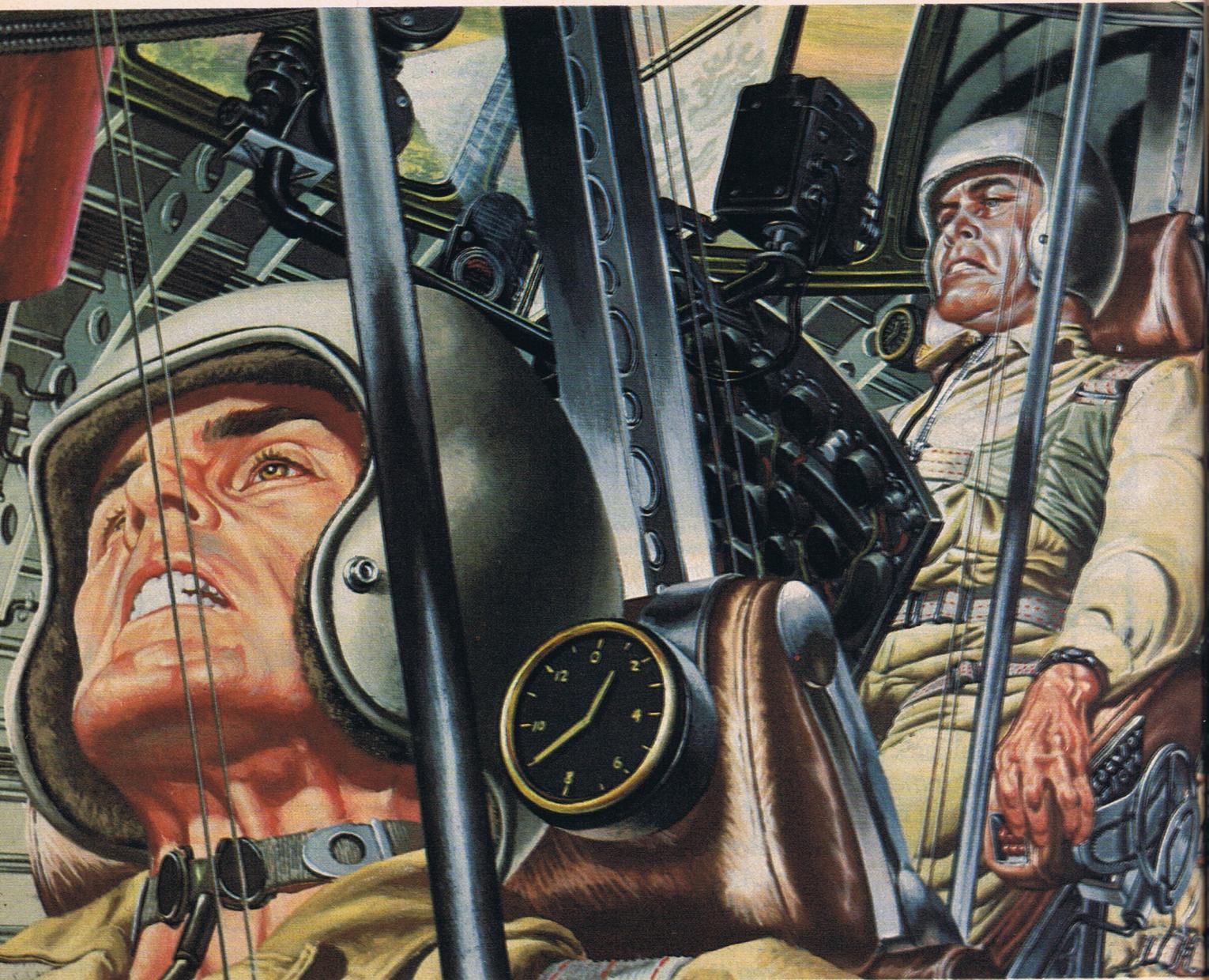
ships filled with Caterpillar tractors and vacuum tube computers. And all this wasn't dreaming on the editorial staff's part, they insisted. The technology was *there!* "Speculations regarding future technical developments have been carefully avoided," the magazine stated proudly.

*Collier's* was a decidedly different magazine; one of the big four that flourished in the 40s and 50s; along with *Life*, *Look* and *The Saturday Evening Post*. But more than the others, *Collier's* looked beneath the gloss of everyday life. It was famous for its exposures of corruption in national and municipal government. It printed quality fiction (some of Kurt Vonnegut's first stories found their way into its pages) and it often revealed tantalizing "scoops" on the latest military and scientific developments. Perhaps because of its unique approach to the world around it, *Collier's* was the first of the "big four" to die, disappearing in 1957, at the height of its popularity.

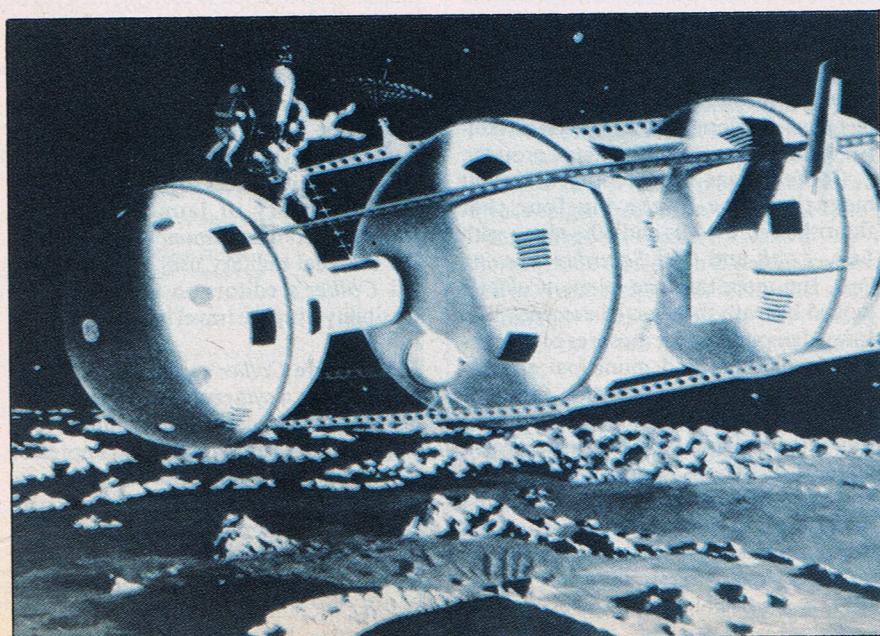
Before it vanished, however, the

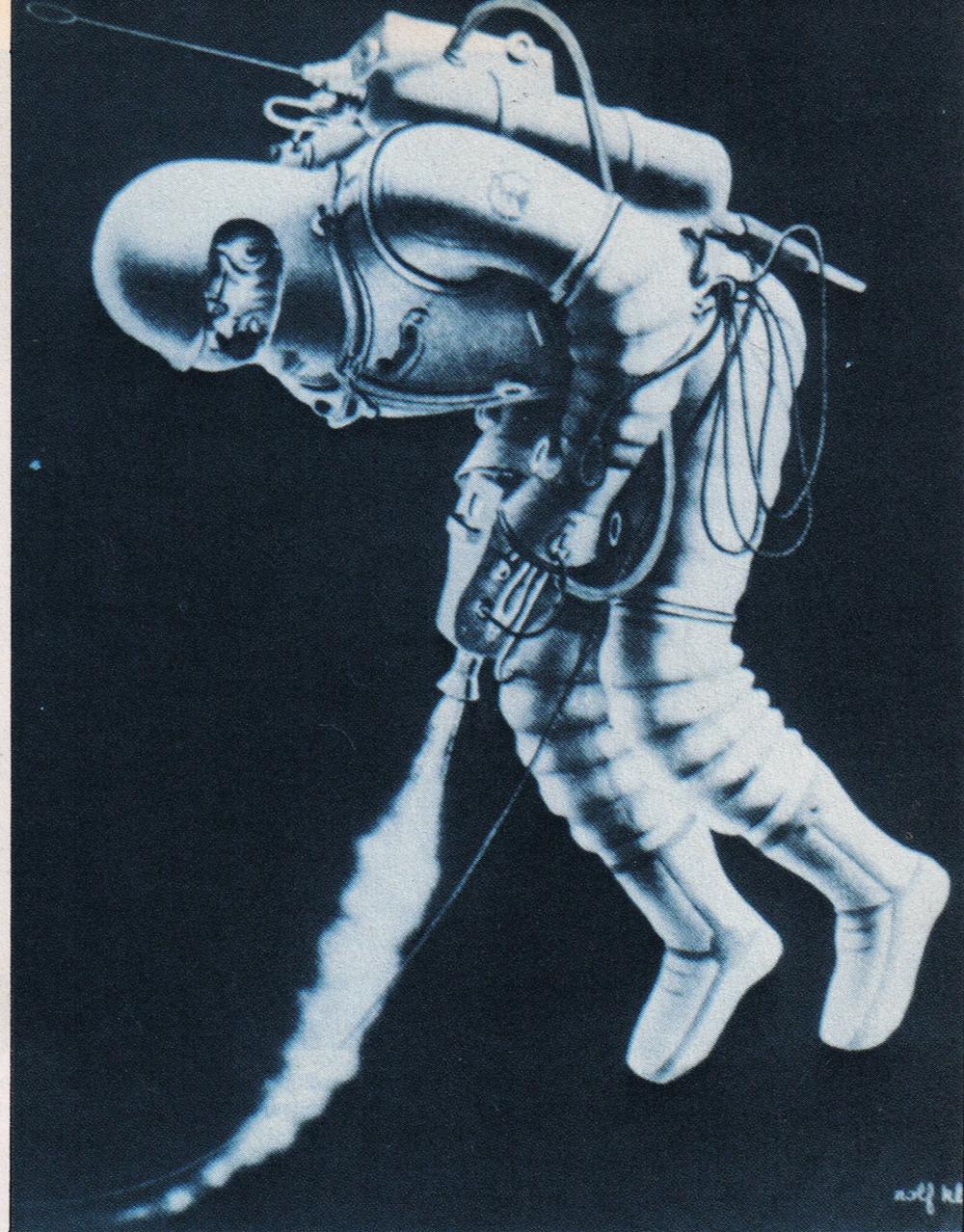
magazine succeeded in turning the eyes of the United States towards the heavens. During the course of their science-factual stories, the magazine managed to unearth advance information about the *Nautilus* submarine and other futuristic pieces of hardware. Eventually, they developed a few speculative pieces such as one tackling the possibility of launching atomic warheads from the Moon. Concern about the eventual military uses of outer space led *Collier's* editors to investigate the feasibility of space travel in the (then) near future.

The entire *Collier's* space series had its beginning as a symposium on space travel held at the Hayden Planetarium in New York City in October, 1951. So impressed was managing editor Gordon Manning that he decided to hold his own "symposium" of experts — a group dedicated to exploring the possibility of space travel in unprecedented detail. The resulting *Collier's* team included Wernher von Braun, then Technical Director of the Ar-

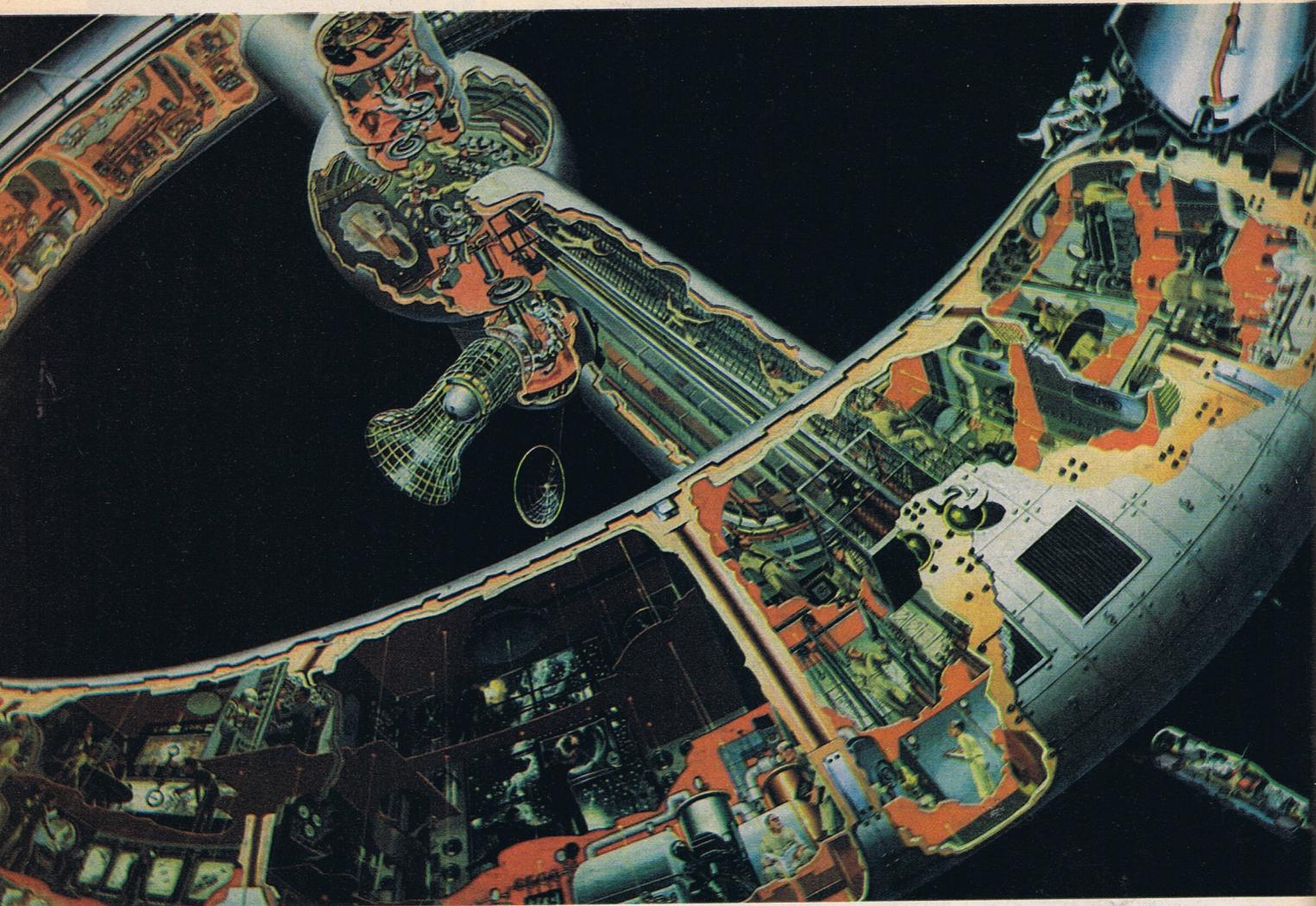


Above: The March 7, 1953 issue of *Collier's* featured an article on astronaut training. This illustration by Fred Freeman shows a number of trainees in a third stage mock-up undergoing acceleration conditioning in a centrifuge. Crew reactions are monitored on camera.

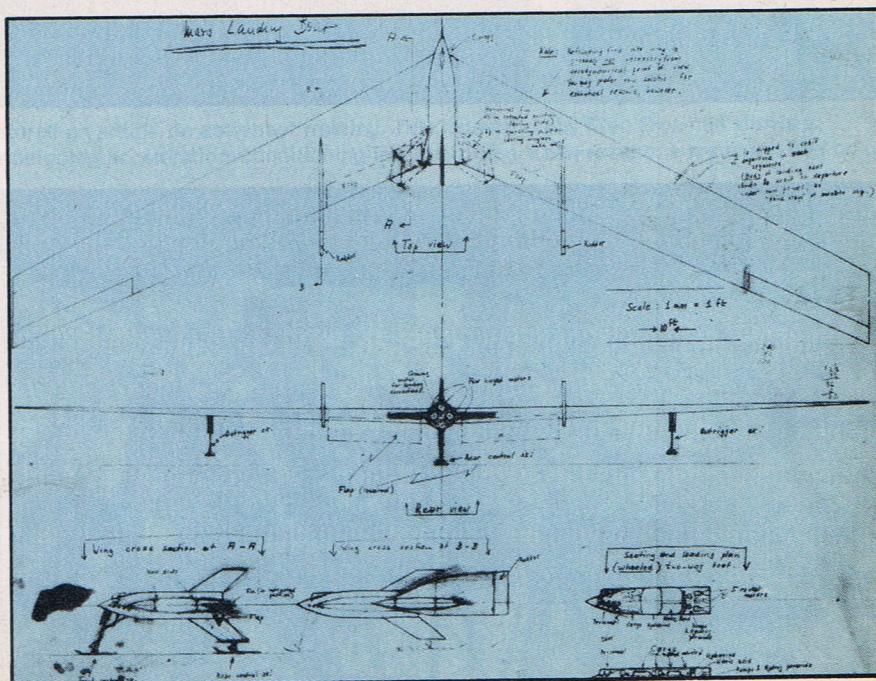
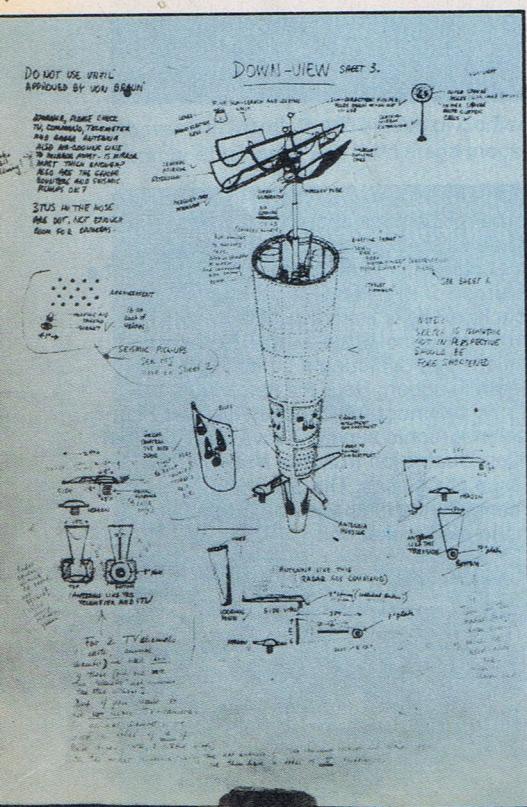




Far left: Bonestell's rendering of a Lunar orbiter 500 miles above the Lunar surface. Middle left: Bonestell's illustration of a Lunar ship in braking maneuver above the surface of the Moon. The crater in the background is Harpalus, the landing site in *Destination Moon*. Left: A Rolf Klep illustration depicting a Lunar exploration team in action. Here the astronauts are firing seismographic rockets as part of a selenographic survey. Above: Another Rolf Klep illustration from the March 22, 1952 issue of *Collier's*. The astronaut is maneuvering in space via a portable hand-held rocket unit.



Above: Veteran *Collier's* illustrator Fred Freeman produced this exciting cut-away of von Braun's space station. The 250-foot diameter space station was designed for a crew of 80 in orbit 250 miles above the Earth. (Illustration appeared March 22, 1952.)



Left: Preliminary drawing by Fred Freeman of the "baby satellite" featured on the June 27, 1953 cover of *Collier's*. Much of von Braun's detail never made it to the finished painting (see page 63.) Above: von Braun's original concept for a Mars glider, a later version of which was used for the film *Conquest of Space*.

my Ordinance Guided Missiles Development Group; Fred L. Whipple, Chairman of the Department of Astronomy at Harvard University; Joseph Kaplan, Professor of Physics, UCLA (an authority on the upper atmosphere); Heinz Haber, U.S. Air Force Department of Space Medicine; and Willy Ley, authority on space travel and rocketry who served as general advisor on the series. The group seldom met all at one gathering, but all were dedicated to making contributions. Oscar Schacter, Deputy Director of the UN Legal Department was consulted concerning the international legal aspects of space travel. The entire symposium and magazine series was put under the direction of *Collier's* associate editor, the late Cornelius Ryan. "Connie" Ryan was a correspondent with the 9th Air Force in World War II, later attached to General MacArthur's headquarters in Japan. He was present at the Bikini atomic bomb test and covered the war in Israel. Ryan later authored *The Longest Day* and *A Bridge Too Far*. To translate the concepts of von Braun and Ley into visual form, Ryan chose Chesley Bonestell, whose work had appeared several times before in *Collier's*; Fred Freeman, veteran *Collier's* illustrator; and Rolf Klep, technical artist.

During the two-year course of the series, a full-scale space program was outlined in the most minute possible detail. The first step would be the "baby satellite," an unmanned artificial Moon carrying three rhesus monkeys. It was to orbit at an altitude of 200 miles for 60 days before re-entering the atmosphere (the monkeys were to be given a dose of lethal gas immediately before re-entry). During this time the 30-foot cone would telemeter information on the animals' reactions and health, as well as TV coverage of terrestrial weather, which the authors predicted would be picked up by commercial broadcasters and transmitted nationally. The manned program would follow.

The series detailed the preliminaries to manned space flight: the extensive physical and psychological testing of the crews, the development of the space suit and tools, even the engineering of escape devices in the event of emergencies at high altitudes. The manned rockets were to be three-stage vehicles 265-feet tall (compared to the Saturn V's 363 feet), each with a crew of 10 (the authors specified that women would be included) and a payload of 36 tons. The manned third stage had five rocket engines with a total thrust of 270 tons. All stages were recoverable, to be re-assembled later in a vertical assembly building, from which the rocket would be wheeled on a giant crawler to its launch site. It was suggested that the launch site be constructed at the Air Force Proving Grounds at Cocoa, Florida: the present location of Kennedy Space Center.

A space station, 250 feet in diameter, with a crew of several hundred was to be

next. A sign of the post-war times in which the series was created is indicated by the emphasis put on the station's military advantages. This was to have been accomplished by 1963 (1967 in a later estimate).

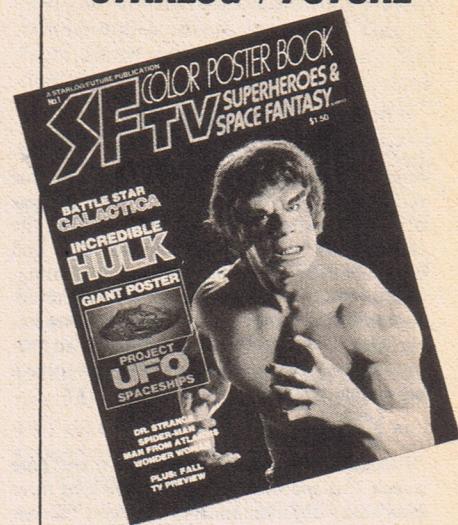
Nearby, a fleet of three Moonships was to be constructed: two passenger ships that would eventually return to Earth orbit and a cargo ship that would remain on the Moon. An expedition force of 50 were to remain on the Moon for six weeks, traveling as far as 250 miles from base in peroxide-powered tractors. The expedition would leave unmanned monitors on the Moon to telemeter data to Earth continuously.

Later still, a manned expedition to Mars would be launched from the space station's orbit. This story inspired the George Pal film, *The Conquest of Space*.

The *Collier's* scenario prompted mixed reactions from readers and officials. The magazine's letter columns were filled with the enthusiastic responses of its readers, while on the other hand, *Time* devoted its December 8, 1952 lead story to a less-than-salutary coverage of von Braun's ideas, as proposed in *Collier's*. *Time* admonished an "oversold public...happily mixing fact and fiction, apparently believes that space travel is just around the corner." Much of the article is devoted to von Braun's critics. Fritz Haber believed that the whole idea of space suits must be abandoned; Hubertus Strughold did not believe that men would be able to function at zero-g. And one of von Braun's bitterest critics said, "Look at this von Braun! He is the man who lost the war for Hitler...von Braun has always wanted to be the Columbus of space. He was thinking of space flight, not weapons, when he sold the V-2 to Hitler. He says so himself. He is still thinking of space flight, not weapons..."

The *Collier's* series on space travel was enormously influential, and continues to be. The magazines reached millions of readers, and the three spin-off books, *Across The Space Frontier*, *Conquest of the Moon* and *The Exploration of Mars*, reached many thousands more. These books are still being read today. Countless scientists and technicians began their careers after seeing the series in their youth. The public was made aware of the practical possibility of space flight in their lifetimes. There was no more esoteric mystery about it—the knowledge, technology, materials and money were all there. Following the *Collier's* articles, there was a surge of national interest in space exploration that lasted through the fifties. Every major magazine followed suit with their own speculations. Disney's *Disneyland* television program borrowed many of *Collier's* experts and produced a series of films that did, on TV, what the magazine did in print. It can hardly be a coincidence that only four years after the last of the *Collier's* articles, the U.S. launched its first Earth satellite. 

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(Continued from page 5)

## SFX SNAFU

...What is the difference (if there is a difference), between "process screen" and a "blue screen?" ...In most descriptions of the process of doing matte work, we are told that the camera must be tied down to avoid jiggle, and movement that will show up during printing. The question: How is Dykstraflex able to accomplish this movement without resulting jiggle? Or is Dykstraflex un-unique in known procedure, and are there methods in use to give movement while doing composite work?

George T. Chronis  
Baldwin Park, CA.

*"Process" screen is the general term and blue screen is a specific type. There are and have been many different kinds of "process" screen systems. As to your second question, the camera usually remains stationary for matte shots, e.g. when a portion of the frame will be replaced by a painting. The Dykstraflex employs a blue-screen traveling matte, so that a new matte is generated for each frame of film, hence the camera can move. The M.G.M. matte department developed a system to allow "panning" across live action and matte paintings, but it has been rarely used. Our sister publication STARLOG will deal with traveling mattes as part of its special effects series.*

## OLE ELO

...I found the May issue of FUTURE informative and highly enjoyable. However, the article on science-fiction's influence in the advertising media left out a prime example. The Electric Light Orchestra has an animated ad for the *Out Of The Blue* album. The ad features a space station with the ELO symbol, interior shot of the station, and a shuttle craft. These items are also on the album cover itself. By the way, the inside album cover is just as pleasing as the outside.

Gary Jensen  
Gahanna, Ohio 43230

*Both the ELO commercial and the album art are the work of talented artist Shusei Nag oaka. For more on Shusei's fantastic SF scenes, check out the full color feature and poster in this issue.*



## SPACE FOR SALE

... "OTRAG: This Space For Sale" (FUTURE # 3) caused me no little concern. Yes, Mr. Kayser, let's put your beloved corporation in space. What a wonderful idea. (I read that short story, too.) Just look around at our pollution-free environment. Maybe if we're lucky enough they will do to space what they've done to our oceans. At least we won't have to worry about breathing out there, at least until they find another planet to unleash the human termite on.

Let's put the question before the U.N. where it belongs. No one country can do it, the U.N. must ban all but countries which belong to the U.N., using the police action of U.N. troops to enforce the law. I would rather see us never in space than to see us do to the other planets what we have done to poor old Mother Earth.

Timothy J. Stinson  
Lorain, Ohio

*What makes you think a private corporation is more likely to "pollute" space than a national government? As for police action by the U.N....now that's scary! Why not encourage the peaceful pursuit of profit in space—and take some of the environmental burden off poor old Mother Earth.*



Photo: © Reed

## COSMIC ROMEO

... For twenty-five years I've been carrying a flame for a young lady whose name I have never known. Granted, she's "young" no more, whoever and wherever she is, but the memory of her TV presence in the 1950s space series *Rocky Jones, Space Ranger* haunts me to this day! Surprisingly, few people even remember the show. I would appreciate it beyond words if you could tell me who starred as Vena in that series.

George Robertson  
Sandy, Utah 84070

*In the interest of true love, FUTURE did a bit of digging and found out that Sally Mansfield played the fabulous female crew member,*

*Vena. By the way, in case you're interested, Richard Crane played stalwart Rocky, James Lyndon played teenaged troubleshooter Biff and Charles Merideith portrayed the ever-understanding Secretary Drake.*

## CARTER vs. ENERGY

...In general I agree with the statements in "Energy from Space?" (FUTURE #3). Using present technology, 25 to 50 solar power satellites of 10 gigawatt capacity would provide enough energy to consistently supply the United States with base load energy requirements by the year 2000. But I would like to point out a significant error which the author makes in assuming that the only barrier to utilization of solar satellites is lack of budget. The Carter Administration is dead set against any high technology energy alternatives, specifically solar satellites, and forms an impenetrable block to their utilization. Also, the undeniable might of the oil lobby has affected the power satellite's acceptance in Congress, preventing any true advancement.

Scott Andrews  
Houston, Texas

*Right, Scott, except for one thing: Carter does support at least one high technology energy alternative—nuclear power. But there's hope yet for solar power satellites as people like you become aware of why they're not being fully investigated and write letters to their representatives and senators in Washington.*

## NIELSON UNMASKED

...You may have been prematurely thanking Christy Marx for her info regarding the Nielson rating system. My family took part in the rating system one week last fall, with none of the nonsense described in her letter. (FUTURE # 2)

A few weeks before "our" week, we were sent a letter asking if we would participate. The letter explained that our family has been chosen at random. We thought this sounded interesting and agreed.

The week before "ours" a small TV viewing diary was sent to us. We were to record our viewing for seven days. A few pages of it were devoted to recording the ages, sex, employment, education of the viewers.

During the viewing week we kept the diary close to our TV set. Timing in the diary started at 6 a.m. and ended around 2 a.m. Space was provided for possible cable viewing before or after those times and also for programs that normally would have been watched but missed that week. The time was divided into fifteen minute slots, and each person was to mark down when he or she was or wasn't watching. We dropped the sealed diary into the mail at the end of the week. A week or so later we received a postcard of thanks with fifty cents attached.

See? Isn't that simple. No mysterious devices, no select group of people, no shield of secrecy. Just a system.

A.L. Stout  
Wyoming, Michigan

*Another American myth down the tubes.*

## CIVILIZATION IN SPACE

(Continued from page 54)

can't do that. Uncle Sam owns that hunk of steel and glass, not you."

Freeman broke in, "That has yet to be determined. Look, I suggest that you just get on the phone and tell whoever it was that sent you up here that you're on your way back."

The two craft, which had been closing fast on the habitat, started to slow. Scott's voice came over the speaker, "Now listen, Josh. I'm going to give you the benefit of the doubt...my orders don't say anything about fighting my way aboard your little world. So we'll sit tight, right here, and I'll make that call. They're not going to like it. Josh I hope you know what you're doing."

"Thanks, Scotty. I hope so, too."

Another line flashed on the console. It was comp-alysis. "What is it Jackie?" This was no time for interruptions.

"Sir, we've analyzed the telescope tapes from November 17 and we found it! The source of the laser that hit the shuttle! It was one of the old Soviet 'killer-sats' from the Cosmos IV-B series. They were all supposed to have been put out of commission in the mid-eighties. This one's flying in a highly erratic low-Earth orbit though, so it might have gone undetected. Anyway, its mission was, obviously, to seek out and destroy orbital laser communications devices and it must have tuned into the shuttle's comm-line. We've plotted its orbit; I'll punch it in." As she did so, a printout sheet chugged its way out of Freeman's console board. The information was now stored in the computer's memory, as well.

"That's wonderful, Jackie! Good work!" Freeman beamed as he broke contact and punched in a priority call to the White House.

Ten minutes later, covered with perspiration, Freeman had finished talking with the President. The Commander-In-Chief had been elated by the news, agreeing with Freeman that this would give the U.S. the leverage it needed to get the Russians to go along with the treaty proposals the President had announced the night before. (Cris had done her job and done it well. Freeman gave a silent prayer of thanks.) The President thanked him for calling and decided that perhaps he had been just a bit hasty—the troop ships would be recalled as a gesture of world peace.

Looking up from the console, Freeman glanced at the giant screens...something was not right, but at first he wasn't sure of what it was. Then his eyes focused on it. The troop ships were moving again—toward the habitat.

Freeman opened a line, "Damn it, Scott! What are you doing! I spoke with the President—you're supposed to return to Earth. Everything's okay..."

Scott spoke in a slow drawl. "Well now, Josh. You sure did speak with the President. And he may have been mighty in-

spired by what you said. But he surely doesn't like the idea of you calling the shots from up here in your cozy little bird's nest. And, apparently, neither do your bosses—the people over at D.W., Inc.

"I've been given new orders, Josh. I'm to return to Earth, alright—but with you. You've been grounded."

\* \* \*

Freeman felt uncomfortable in Cristobal McKenzie's 35th floor Watergate complex suite. It wasn't that Cris made him uncomfortable—quite the contrary. It was the Earth—its constant gravity ever-tugging at his body. He wasn't used to it. It felt unnatural. As unnatural as the collar that chafed his neck, or the hard-soled shoes that brought blisters up on his soft-skinned feet. He felt like a stranger in a strange land and he wanted to go home.

"I still can't believe how it all worked out," Cris said. "You have more luck than any one man is entitled to."

Freeman grinned. "I also had you on my side, Cris. I can't thank you enough for what you did." Freeman paused then. "But tell me, how did you get the President to pardon me for all crimes I may or may not have committed? Not that I resent it, but I was sort of looking forward to the publicity of a trial—you know, a real chance to tell the true story to the world."

Cris laughed delightedly. "But that's exactly why he did it. It was his idea, really. Closed-door diplomacy is not a fit topic for the mass media. I mean, the treaties

haven't even been ratified yet—although there's no question that they will be. And you've got what you wanted. Disney's World has been given international status as a U.N. protectorate, the wonders of space are opened to all, and military installations and activities have been banned from Earth orbit. The only thing you don't have is a job, and I should think you'd be looking forward to a vacation."

Freeman winced inwardly at the thought of a "vacation" on Earth.

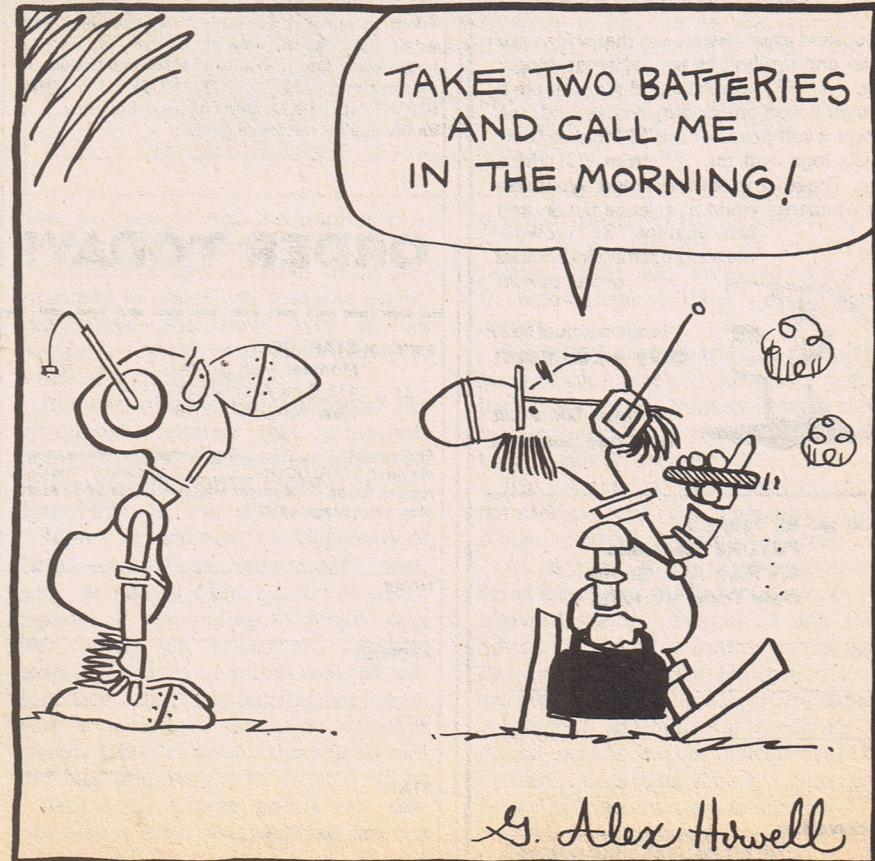
"Oh, don't worry about me, Cris." Freeman rose, stretched his cramped muscles and walked over to the window. "I've got a few things cooking. I heard that Combined Technologies is looking to finance a habitat to compete with Disney's World—only bigger and better." Freeman looked up at the starry night sky, felt its attraction deep within him. "Naturally, I'll only take the job if they let me go up and supervise the construction."

Cris laughed. "Of course."

"Seriously though, I've been thinking about it," Freeman said, still looking out.

"Instead of just putting another huge habitat up in Earth orbit—it's getting kind of crowded up there, you know—why not go all out and let it orbit at L-5? I've already started fiddling with some plans for it. I even came up with a name for it. I got it from an old Arthur C. Clarke story about a gigantic alien habitat from deep space that passes near the Earth. He called it 'Rama.' "

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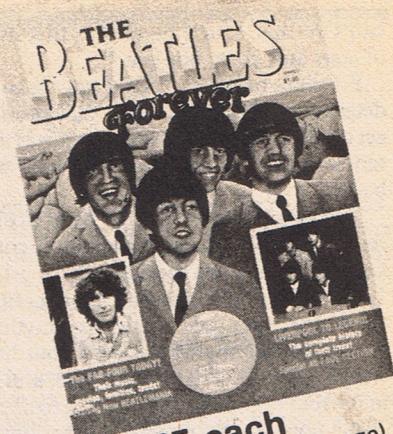
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Since the first upright man encountered his own face, staring back at him from the still waters of a lake, the human animal has been fascinated with mirror images. No other creature on Earth shares this hypnotic attraction to self.

We live in a *robotic* society: autos, telephones, elevators, kitchen appliances, TV sets—all are robot devices. These machines serve us, transport us, entertain us . . . but they hold no awe for us; we take them for granted. They are *functional*, designed to meet a specific purpose with no tinge of humanism in their makeup. But when a computer "talks" we listen; we are instantly fascinated. Suddenly *it*, a machine, has assumed humanistic properties. And the closer the devise comes to our manlike image, the more enthralled we are.

The humanoid robot, a creature of computerized metal built in the exact simulation of man, has existed for decades in the pages of science fiction.

This concept has been brilliantly explored in such classics as "Helen O'Loy" (1938) by Lester del Rey, "Marionettes, Inc." (1949) by Ray Bradbury, "Fondly Fahrenheit" (1954) by Alfred Bester, "Steel" (1956) by Richard Matheson, "The Quest for St. Aquin" (1959) by Anthony Boucher, *Do Androids Dream of Electric Sheep?* (1968) by Philip K. Dick and *After Things Fell Apart* (1970) by Ron Goulart.

A special bow is due the "father" of robotics, Isaac Asimov, who provided SF with his legendary "Three Laws" governing robot behavior—which he fully outlined in his story "Runaround" (1942).

The ubiquitous and awesomely prolific Dr. Asimov subsequently produced three classic volumes in the genre: his collection, *I, Robot* (1950)—and his linked novels, *The Caves of Steel* (1953) and *The Naked Sun* (1956).

All this was fiction, imaginative speculation, but with the birth of the Space Age, and its resultant art of miniaturization, we are on the verge of converting fiction to fact.

Miniaturization is the liberating factor in the ultimate development of the humanoid robot. In our earlier, pre-space technology, the multiple com-

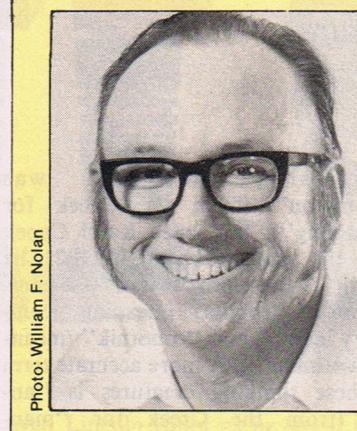
ponents of a major computer required several hundred feet of floor space. Today, these same complex components can be placed in a container small enough to hold in the palm of one hand.

Vannevar Bush developed the first analog computer in 1925, but it was not until after the Second World War that computer science took a quantum leap forward—with ENIAC, the first electronic computer, built in 1946. But even ENIAC is primitive in comparison with the jet-swift computers of the 1970s: the CDC 7600 can perform 36 million opera-

"Departments of Artificial Intelligence." And the MacGowan/Ordway book, *Intelligence In The Universe*, states: "It can be asserted without reservation that a general purpose digital computer can think in every sense of the word, and this is true no matter what definition of thinking is specified."

Dr. John Irving Good of Trinity College, Oxford, not only believes in a machine's power to reason but is convinced they are capable of *ultraintelligence*. He feels that the evolution of matter need not be limited to the

### From Robots to Androids



### Nolan

Author of some 30 novels, William F. Nolan is perhaps best known for his *Logan* trilogy and the film, *Logan's Run*. He has also published short fiction stories, full length biographies, and written several movies-of-the-week for television. His screenplay, *Burnt Offerings*, won the Academy of SF, Fantasy and Horror's top award as "Best Horror Film of 1976." Mr. Nolan has a special affinity for humanoid robots, since he edited the first anthology of all-android science fiction in 1965, *"The Pseudo-People."*

tions per second! And the graph of progress continues upward . . .

Modern computers have been programmed to create art, compose poetry and music—and have even plotted whodunits! (And we all know they play a hell of a chess game!)

But what of machine *intelligence*? The oft-quoted argument that a machine cannot *think*, and is therefore inherently inferior to its human creator, is challenged by today's scientists.

John C. Loehlin, at the University of Texas, created an "emotional" computer he named Aldous (after Huxley), capable of responding to inputs with fear, anger or attraction. "Aldous generates actions of withdrawal, attack, approach, conflict or indifference—and, over a period of time, he develops specific attitudes toward the objects with which he interacts."

Arthur C. Clarke points out that universities such as the Massachusetts Institute of Technology now sponsor

organic. Machines will be able to move into new realms of abstract thought—and may eventually leave us far below them on Earth's evolutionary ladder.

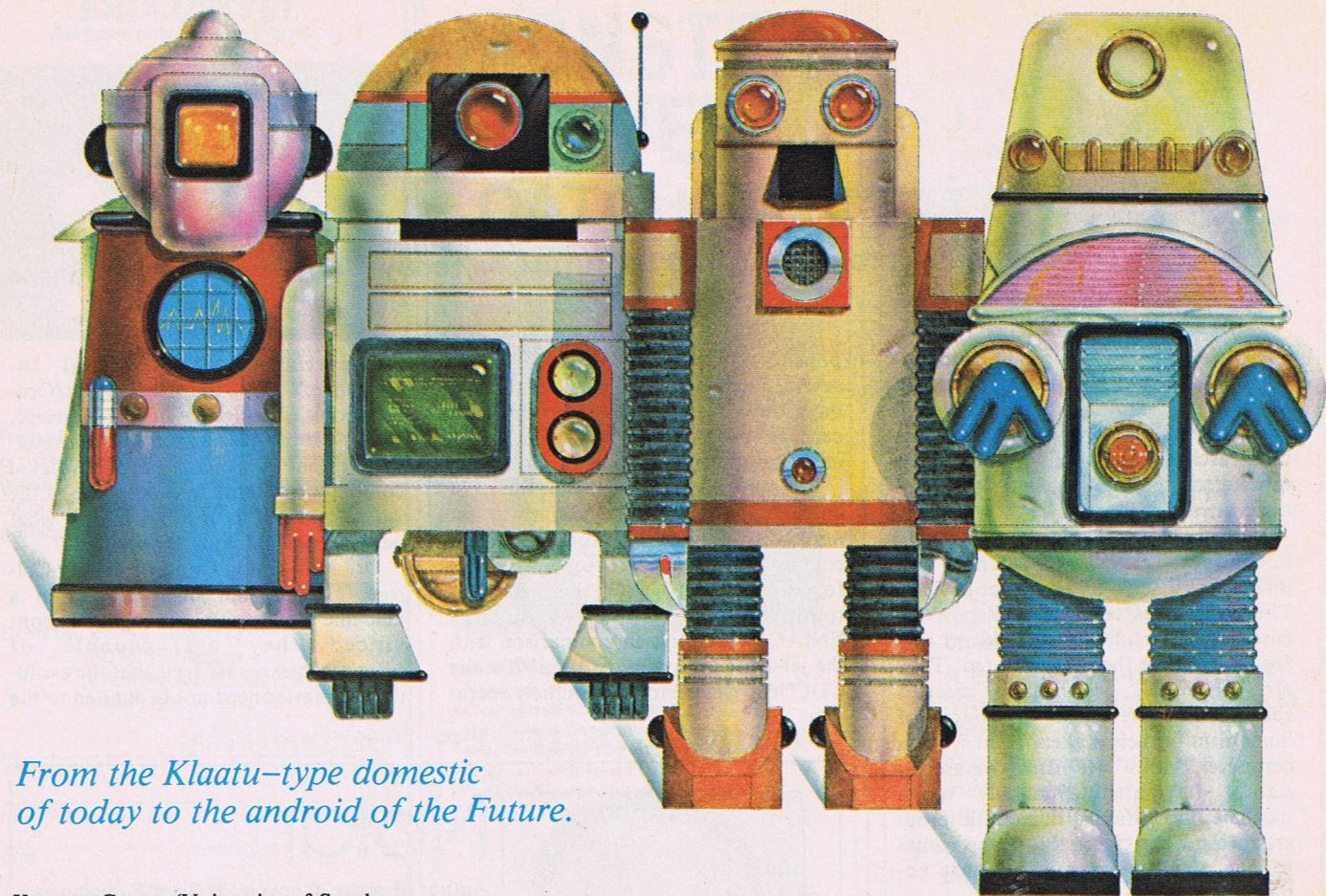
Therefore, the construction and placement of computerized electronic "thinking" brains within humanoid body shells is now *more* than a theoretical possibility; it is tomorrow's reality.

But what of the body shells themselves, and the humanoid components needed to complete them?

As early as 1970 synthetic blood was being developed by Robert Geyer at the Harvard Medical School—and Paul Silverstein (of the Institute for Surgical Research at Fort Sam Houston, Texas) has created totally lifelike artificial skin.

Materials available for a robot's artificial organs include silicone rubber, Teflon, copolyurethane, charcoal, fluorocarbons and various metals.

Stephen Abrahamson and J. S. Denison, at the Aerojet Corporation's Von



*From the Klaatu-type domestic  
of today to the android of the Future.*

Karman Center (University of Southern California) are responsible for a major breakthrough in humanoid robotic technology. Utilizing skin-textured plastics stretched over a steel-and-fiberglass frame, they created a computerized mannikin for medical research which is incredibly responsive and lifelike. At six-feet, two-inches, the robot weighs 195 pounds, has the external features of a man, and can "breathe," open and close his eyes and move his mouth. His heartbeat, blood pressure and pulse rate can be monitored. He possesses a tongue, teeth and vocal cords (though he does not speak).

Abrahamson contends that "future generations of robots will be able to bleed, sweat, cry out in pain, simulate different ages—and will possess internal organs comparable to human organs."

What this means to the average citizen is that he will soon be able to purchase (for the price of a new car or less) a humanoid companion capable of functioning on a wide variety of levels. Such pseudo humans may be selected as to age, sex, hair and eye color and individual body-type. They will be programmed to function in total response to the owner's needs and wishes.

In a sense, it is misleading to call such creations "robots." The term is limiting, in that it is associated in the public mind with awkward, clanking, rivet-studded tin men, lacking the subtle complexity of the humanoid.

Originally, the term was "automaton" (from the Greek for "self-acting"), but when Karel Capek wrote his play, *R.U.R.*, in 1921 he brought us the word "robot"—a combination of "robot" (meaning "compulsory labor") and "robotnik" (meaning "workman"). A more accurate term for these thinking creatures is "android" (from the Greek for "man-like"). But even this term is used interchangeably by many SF writers.

Whatever they are called, such beings will exert a profound influence on our culture. The possibilities for work, entertainment, schooling, sex, sports, companionship . . . are mind-boggling. Imagine:

— a football game, starring the L.A. Rams, robotically duplicated to provide a brand of body-bruising, bone-crushing sport which human players could never survive.

— a bikini-clad duplicate of Farrah Fawcett-Majors, with flashing teeth and windswept hairdo, draping her soft arms around her human owner's neck in the dim-lit privacy of his bedroom. (Or, for the ladies, a muscular, tanned, blond-haired Robert Redford!)

— a college lecture course, taught by a charming, tireless, brilliantly programmed professor who exhibits inhuman tact, fairness and patience.

— a furious political debate between the local candidate for mayor and a

humanoid designed to counter all his arguments and force an honest examination of the real issues.

The potential of such humanoids is unlimited—as functioning servants, teachers, companions for the aged, as highly adaptable sexual partners (willing to satisfy desires ranging from the mundane to the perverse!)—and as specialized workers in high-risk professions, able to perform smoothly under conditions of severe heat, cold and killing radioactivity.

Society, however, will have to face many new problems in adjusting to this unique man-robot social system. Complex situations are bound to arise due to our intimate interrelationship with these disarmingly lifelike creations.

What if a man wishes to leave his wife for a robot?

What happens to a malfunctioning pseudo person who's caught robbing a liquor store?

And what of the owner who illegally reprograms his robot to commit murder? (Will the robot be put on trial with his master?)

What "rights" will these thinking machines insist upon?

Will they organize as a minority group . . . lobby in Washington?

And just how human will they be? What penalty will be imposed on an



Art: Jose Cruz

owner who ruthlessly murders his robot companion.

If a child cannot separate humans from pseudo humans, what psychological scars will this "unnatural" society create in his or her young mind? Will children love their robot sister more than their real flesh-and-blood sister? How will they adjust to being told that the "Daddy" they've come to love is merely a robot replacement for the husband who, long since, deserted the family?

Such questions are endless—and darkly disturbing. But they *will* have to be answered.

I vividly recall my own first encounter with a pseudo human: I was sitting in the front row of a theater as a tall, angular gentleman rose from his chair on the stage to speak in a clear, emotionally charged voice. His words were accented by subtle hand gestures as he blinked at all of us, eyes shifting to regard his audience with obvious warmth and kindness.

His name was Abe Lincoln and his father was Walt Disney. On that afternoon at Disneyland, facing the gentle-

eyed Lincoln robot as he stood tall on that flag-draped stage, I felt a surge of empathy which totally shocked and surprised me.

I knew that I was responding to a thing of tubes and metal and plastics—but the simulation was so uncanny that I found myself reacting emotionally to this metal man and to the wise words he spoke. The experience, for me, was unnerving and a bit "spooky."

The Disney robot is, of course, primitive indeed in comparison to the sophisticated pseudo humans in our future, and it seems certain that we will find ourselves responding in strong emotional terms to their manufactured humanity. Their presence will generate a prime culture shock.

The fact is, drawbacks and problems aside, such robots *will* be built and they *will* be purchased and used for man's instruction and amusement. (Does the chilling total of 40,000 highway deaths a year deter us from buying cars?) It will be a future citizen's "right," in 2001, to

own robots—as it is his right, in 1978, to own cars and guns.

Man's fascination with his artificially created self image will create a solid popular demand, and a host of manufacturing firms will emerge to compete in fulfilling that demand. Humanoids will be as readily available as stoves and dishwashers.

But the unsettling question remains: with the robot's power to think, to build vastly improved versions of itself, how soon will the humanoid machine reach a level *beyond* that of mankind—and replace us on this planet as Earth's next evolutionary stage of life?

As Dr. Good has ominously phrased it: "The first ultraintelligent machine is the last invention that man need make."

In the near future we must face this ultimate threat, because our metallic friends are not only possible, they are *inevitable*.

Whether we like it or not, the humanoids are coming.

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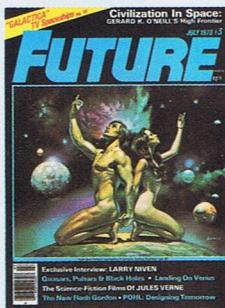
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## *—perspectives—*

**T**he future is here...the future is now. Seek out its shape, spirit and possibilities—use it and enjoy it.

Fighting to recreate the past is a waste of energy; the past is what it is. Trying to maintain the *status quo* is a fool's errand—it reveals a lack of insight into the current state of affairs of our technocratic society. Anyone looking objectively at the course of events in the 20th century will realize that *change* is (as it always has been) the basic constant.

Some areas of society experience cyclical changes, some go through an evolutionary process—but *change* is the name of the game.

For centuries the cliche that "nothing is certain except death and taxes" has been recognized as having a core of eternal truth. Today, of course, both "truths" are on shaky ground. (You will find out more about the uncertainty of death in an upcoming "Tomorrow" column by Robert Anton Wilson, author of the *Illuminatus* trilogy and *The Cosmic Trigger*. Immortality is no longer unthinkable and may soon be achievable. As for the "certainty" of taxes—well, just look at your daily newspapers.)

The future is ever upon us, as the speed with which new changes filter down from industry to citizenry increases.

Energy should not be wasted on trying to halt the passage of time or in recapturing the years past. The health and sanity of our civilization depends on our ability to perceive the shape of tomorrow *today* and to anticipate potential problems and solutions. If, for instance, we have moral reservations against people *cloning* themselves, then the whole concept ought to be seriously discussed in the public forum forthwith—instead of getting sidetracked into a debate on its feasibility. On the other hand, if cloned humans are to be accepted into the society, we ought to figure out some guidelines that define and protect their legal status. And, as William F. Nolan points out in this issue's "Tomorrow" column, the same kind of serious discussion is needed in determining the direction of thinking machines—before the breakthrough is made that will plop a separate society of pseudo-humans right into our midst.

Advances being made on the frontiers of science are creating the possibility of new shapes for our society. Use your energy in a positive way, working to create the future of your choice. The pulse of change flows around the world like an ocean wave: ride it and enjoy it, don't fight it.

Howard Zimmerman/Editor

## **FUTURE #6**

**FUTURE #6** will feature an overview of the new SF-TV season, including a full-color review and behind-the-scenes look at ABC's new blockbuster space opera, *Battlestar Galactica*. We'll also have an interview with and color portfolio of our own Space Art Advisor at-large and one of today's leading space artists, Ron Miller. Plus: An exclusive, revealing interview with Christopher Reeve, who portrays "the Man of Steel" in Warner Bros. forthcoming film, *Superman*.

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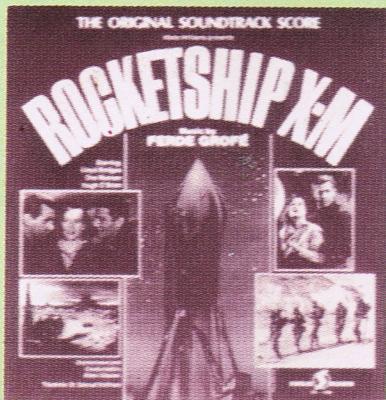
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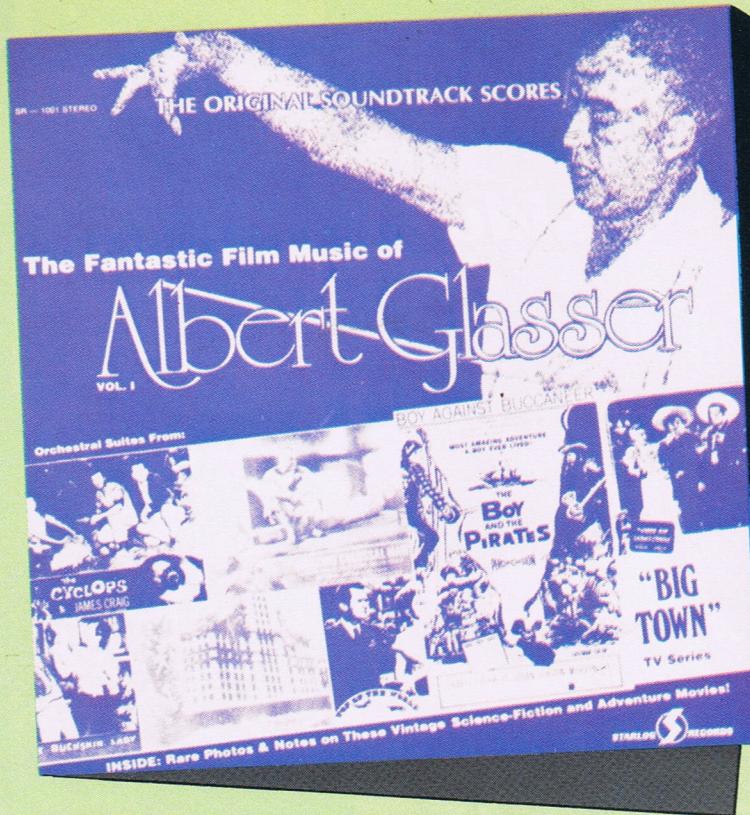
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